THE BUILDER

INCORPORATING

"ARCHITECTURE" AND "THE BRITISH ARCHITECT"

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EDUCATING THE ARCHITECT

A FACTUAL review of the Report of the Special Committee of the R.I.B.A. on Architectural Education was given in our issue for June 7, and some further reflections upon its implications seem called for after a careful study of its terms. The fact that it takes time to absorb the report is a tribute to its importance, and to the care and study which have gone in its framing.

The document is essentially an "architectural" effort in form as well as in substance, for it has a sense of construction, based on substantial foundations, producing an edifice of form and dignity; and with its terms there will be a very large measure of agreement.

The Report begins by examining the type of product which a sound system of education aims to produce, and its specification for the complete architect is admirable. If there is anything to criticise in this section of the Report, it is related to a mild regret that the days of the "rough diamond" in practice would seem to be numbered, and a fear that some powerful characters that might otherwise enrich the profession by sheer unconventional force may be smothered in an over-polite atmosphere of academical correctitude. But that risk of exchange of the peaks of genius for a higher level of mediocrity is common to many aspects of the age in which we now find ourselves.

Coming to the training of future architects, there is also much common ground for agreement in the terms of the Report. Given some greater measure of attention to the practical side of building, and in particular to office experience, very few will quarrel with the conclusion that the ideal training for a student of architecture is by way of the full-time courses at the Recognised Schools. The Report makes a welcome recommendation that office experience before full qualification should receive more real attention than that somewhat perfunctory measure it now enjoys.

At the same time it is recognised that students are still qualifying by means other than this, and the maintenance of the R.I.B.A. external examinations is in itself an acknowledgment of the fact. It is in relation to this dual approach to qualification that the Report exhibits some embarrassment and some little inconsistency. In one place it says: "The R.I.B.A. must maintain its own system of qualifying examinations for the benefit of those who have not passed through a Recognised School." In another it expresses the opinion: " . . . that the continuance of those (unrecognised schools) already existing should in general be officially discouraged." Reading these two fundamental statements in conjunction, the implication would seem to be that the dual system of entry would be limited to students within reach of Recognised Schools, and that any others who may choose, by force of circumstances, to enter the profession by way of the external examinations must remain unassisted in their studies.

It is a known fact that there are large numbers of students depending for their training upon practical experience in the offices of country architects, and supplementing their training by attendance at classes at the smaller Art Schools. Though lacking many of the priceless amenities of full-time study at a Recognised School, such students have often achieved a remarkable balance of knowledge, and have become respected figures in the profession. The Report seems to sweep this aspect of fact aside. There seems to be a choice of only two consistent policies. One is to abolish the external examinations, and the other is to preserve them, and provide adequate facilities for their use. There is something to be said for either conclusion, but nothing for a single educational authority maintaining a system of examinations with one hand, and denying it the full preparatory machinery with the other.

There is, however, another aspect of this matter which seems to have an importance which the Report entirely ignores. That is the question of the junior draughtsman and office boy. Tracing, lettering, printing plans, colouring up, running errands, and being at the beck and call of skilled assistants are essentially tasks for the boy rather than the man. But what a wealth of experience can be gathered in the course of such menial tasks by a keen, live youngster with his eyes open and his wits about him! Where is the place for this boy under the ideal scheme which the Report adopts? Hitherto he has found his feet in the office, and has before him a vista of promotion. With no more than this his training would be inevitably lop-sided and possibly disastrous, but with the supplement of evening study under the right guidance there remain open almost unlimited possibilities for his advancement. His part in the fabric of office organisation thus assumes the elements of a fair bargain of mutual advantage as between master and man, and we search in vain in the Report for any recognition of such an arrangement as a reasonable factor in the scheme of training.

Once it is agreed that the help of juniors is essential to the organisation of an office, and that there are recruits available for this purpose, we are forced to examine the implications of a system which makes no provision for the need. Are we to assume that these juniors are to remain outside the scheme of architectural education, and that they can enter an office only if they are willing to forgo all prospects of advancement? Are there to be two "classes" of persons in an architect's office: one on the road to advancement and another condemned to "hew wood and draw water" for all time? Or are we to look for recruitment in the lower ranks of office staff among the young men who leave the full-time schools at the age of 23 to 25 complete with a Diploma, a Degree, and the hall-mark of qualification? If the latter is the intention, then it is difficult to conceive how the type of young architect which the schools produce can, with any sense of content or happiness, entertain the prospects of early discipline in an architect's office.

The Report seems to have shirked this difficult problem and to have achieved a triumph of apparent consistency by closing an eye to one of the essential facts of architectural practice. In this, the Committee appears to be running a risk of denying to the profession that healthy leavening of men less moulded to a pattern than the more rigid plan of training admits.

NOTES AND NEWS

Birthday Honours.

THE King's Birthday Honours list, the first part of which was made public on June 13, contains the following names connected with the architectural, building or planning professions :—

Mr. E. S. Hill (Under-Secretary, Ministry of Town and Country Planning) —C.B.

Mr. E. N. de Normann (Deputy Secretary, Ministry of Works)—K.B.E.

Mr. H. A. Benson (lately Housing Production Officer, Ministry of Health); Mr. R. R. Costain (Deputy Director of Works, Ministry of Works); Mr. E. George Hicks, M.P. (late Parliamentary Secretary, Ministry of Works); Mr. Sydney J. Tatchell, F.R.I.B.A. (Chairman, Standards Committee, Ministry of Works, and Chairman, Architects' Registration Council of the U.K.)—C.B.E.

Westminster's Pimlico Housing Scheme.

WESTMINSTER City Council's Housing Committee, in reporting upon the result of the Pimlico Housing Competition (*The Builder*, May 24), recommend that Part I of the scheme be proceeded with and that the authors of the winning design (Messrs. Powell and Moya) be appointed architects. The report continues : "As the selected architects are only 25 and 26 years of age respectively, and have necessarily had limited experience, we suggest, in view of the complex problems that will arise in connection with the development of Section I, that the Council . . . appoint, at the expense of the Council, an advisory architect (to be associated with the selected architects) . . . The selected architects are fully in agreement . . ." It is also proposed to appoint a structural engineer and a quantity surveyor for the first part of Section I and a heating and hot-water engineer for the whole scheme. Models of the scheme are to be made and also a full-scale "mock-up" flat is to be constructed.

Westminster Director of Housing.

THE appointment of Mr. John Hughes, B.Arch., F.R.I.B.A., as Director of Housing is recommended by the Westminster City Council's General Purposes Committee. Mr. Hughes, who is 42, has been Director of Housing, Manchester, since, 1938. The post carries a salary of £2,000.

Exhibition of Planning Films.

A REPEAT performance of the exhibition of planning films (in sound) recently given by the Incorporated Association of Architects and Surveyors will be held on Friday, June 28, at 6.30 p.m., at the Central Hall, Westminster. The films to be shown are : "The Proud City," "The Plan and the People," and "A City Reborn." Mrs. Bolton, Chairman of the Town Planning Committee, London County Council, will be present and is expected to answer any questions about the County of London Plan. A limited number of tickets are available on application to the General Secretary, I.A.A.S., 75, Eaton-place, Westminster, S.W.1.

A Town Planning Film.

AMONG a number of films recently completed for the British Council for showing in 100 countries overseas to give information on British life is one entitled "Picture Paper." Despite its newspaper theme this film deals primarily with the preparations for the town-planning of Middlesbrough—for some reason renamed "Ironborough" in the commentary—by Mr. Max Lock, A.R.I.B.A. It faithfully portrays each step made by the planners in the comprehensive preliminary survey of the town, present housing and population densities, the geology of the subsoils and the extent and nature of atmospheric pollution. The film, the commentary of which is to be translated into 23 languages, serves to illustrate to foreign audiences the anxiety of architects and planners to find out what sort of post-war towns the people want.

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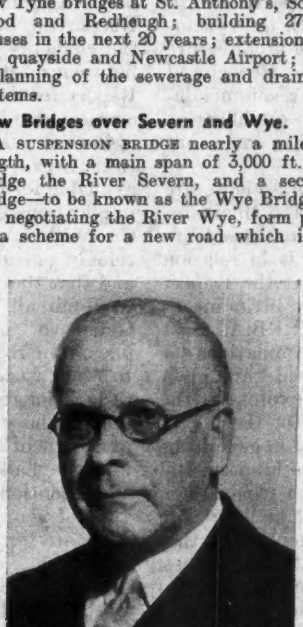
New Bridges over Severn and Wye.

A SUSPENSION BRIDGE nearly a mile in length, with a main span of 3,000 ft., to bridge the River Severn, and a second bridge—to be known as the Wye Bridge—for negotiating the River Wye, form part of a scheme for a new road which it is proposed to construct from a point on the Exeter-Leeds trunk road (A.38) north of Almondsbury to a point on the London-Fishguard trunk road (A.48) north of Haysgate, terminating at a point on the Newport-Chepstow road.

The Severn Bridge, as it will be known, begins at a point on the Beachley Peninsula and terminates at the face of Aust Cliff. The main span is one of 3,000 ft., and the side spans flanking it are each 1,000 ft. long. Connection between the south-east anchorage and the mainland at Aust Cliff will be by three girder spans. The width of the bridge has not yet been finally determined, and may be influenced by the results of aerodynamic investigations now in hand, but it is expected to be about 100 ft.

The specification for the Wye Bridge is for a deck girder bridge of eight spans, seven of which have each approximately 100 ft. clear opening; the remaining span over the navigable channel has a clear opening of 150 ft. The width of the bridge is approximately 90 ft.



MR. SYDNEY TATCHELL, who (as announced on this page) has been made C.B.E. in the King's Birthday Honours.

Appointments.

MR. F. R. S. YORKE, F.R.I.B.A., has been appointed consultant architect for Berkhamsted's housing scheme proposed on the Durrants Farm estate.

MR. FREDERICK ETCHELLS, F.R.I.B.A., is the architect for the restoration of St. Andrew's, Plymouth.

Sir Stephen Tallents.

SIR STEPHEN TALLENTS, K.C.M.G., C.B., who is past the retiring age for Civil Servants, has retired, at his own request, from the post of Public Relations Officer to the Ministry of Town and Country Planning.

Road Crossings.

A DEMAND for the rehabilitation of pedestrian crossings, including the internal illumination of the beacons at night, has been made by the Pedestrians' Association. The resolution is to be sent to the Ministry of Transport, and is coupled with a request to the Home Secretary to secure a better enforcement of the law, so as to restore the confidence of pedestrians in the use of the crossings.

A.P.R.R. Publications.

PUBLISHED with the June issue of the Association for Planning Information Bulletin is "Rebuilding Devastated France after 1918." This illustrated Broadsheet (No. 20) gives a clear account of the post-war problems in France, the methods of attack and the many obstructions to planned reconstruction after the first world war.

How the reconstruction of devastated areas in Burma is being tackled with the co-operative interest of the Government of Burma is outlined in the report in the Information Bulletin of a lecture by Major W. B. Tatton-Brown, who has just returned from that country. Both the above publications are obtainable from the Association's offices at 34, Gordon-square, W.C.1.

Midlands Green Belt.

BIRMINGHAM Corporation and West Bromwich Corporation are negotiating for the purchase from the Earl of Dartmouth of 1,358 acres of Sandwell Park to form a green belt between Birmingham and West Bromwich. As the land lies close to the Handsworth Golf Club it will preserve an open stretch of country of two miles. Dartmouth Park, the gift of the Earl of Dartmouth to West Bromwich, adjoins part of the land now to be acquired.

Building Production Officers.

MR. I. ERNEST JONES, M.A., and MR. R. COPPOCK, C.B.E., have been appointed joint National Production Officers for building output. Details of the appointments are given on page 617.

Temporary Library at Gray's Inn.

A PREFABRICATED, one-storey building in the gardens of Gray's Inn was declared open on Tuesday by Mr. Churchill, a bencher of the Inn, to serve as a temporary library and common room in place of the library destroyed by German action in May, 1941. In declaring the building open, Mr. Churchill said that he was very glad they had been able to have this temporary library constructed. As a building it might not be all that could be wished—he described it as "the architecture of the aftermath"—but he was quite sure the day would come, though he did not expect to live to see it, when they would once again open their ancient hall, renovated and renewed.

Timber Control.

MR. H. CYRIL DAVID has been released by the Board of Trade from his position of Deputy Timber Controller (Overseas Supplies) from June 17, and will be succeeded by Mr. T. Lamas Lees. Mr. David will continue to act in an advisory capacity to the Timber Controller on International timber matters. Mr. D. W. McIntyre has been appointed Assistant Controller, Dept. I, Branch 1 (Shipping), in place of Mr. T. Lamas Lees.

Scottish Industrial Art.

A NEW college of art, in which industrial design is to be taught as nearly as possible under working conditions, is to be started in Scotland by the Council for Industrial Design.

Professional Announcements.

The London address of PROFESSOR A. E. RICHARDSON R.A., F.R.I.B.A., is 31, Old Burlington-street, W.1. (Telephone: Regent 3912.) Professor Richardson is now in partnership with his son-in-law, Mr. Eric Houfe, F.R.I.B.A. The firm will be known as Messrs. Richardson and Houfe. The office at Ampthill is continuing as before.

MR. MORRIS DE METZ, F.R.I.B.A., has entered into partnership with Mr. Theo H. Birks, F.R.I.B.A., and they are practising under the style of de Metz and Birks, at 2, Ludgate-hill, London, E.C.4. (City 4086-7.)

MR. J. W. S. STEPHENS, F.S.I., quantity surveyor, has taken offices at Station-chambers, 56, Turnmill-street, E.C.1. Catalogues and technical literature are requested, and interviews with trade representatives, by appointment, will be welcomed.

MR. E. M. CARROLL, P.A.S.I., has commenced in private practice as a chartered quantity surveyor at Triangle Corner, Upper Richmond-road, East Sheen, London, S.W.14, and would be pleased to receive technical literature at that address.

From *The Builder* of 1846

Saturday, June 20, 1846.

When the prince had deposited the coins, spread the mortar (in his most approved manner) and set the stone . . . the Earl of Clarendon addressed his Royal Highness at some length on the services he had rendered to the institution, and on the advantages which might be expected from its establishment. . . . The noble earl made a very eloquent address: we must, however, take one exception to the tone of it, which would have left the impression on the mind of any person not otherwise informed, that England had no chemists and had done nothing for chemistry—an opinion which needs no refutation on our part.

*** This extract is from an editorial on the occasion of the laying of the foundation-stone of James Lockyer's laboratories for the Royal College of Chemistry on the north side of Hanover-square.

Photo: Eric Schaal.

PROFESSOR LEWIS MUMFORD, now on a visit to this country. His itinerary is referred to under "Coming Events."

COMING EVENTS

Tuesday, June 25.

ROYAL INSTITUTE OF BRITISH ARCHITECTS. The Council Election Results. Mr. Gerald Barry on "The Place of the Architect in the Post-War World." 66, Portland-place, W.1. 6 p.m.

Informal Students' Evening. 66, Portland-place, W.1. 6.30 p.m.

Wednesday, June 26.

HOUSE-BUILDING INDUSTRIES STANDING COMMITTEE. Opening of Competition Houses by Mr. W. D. Adams. At Ardingly, Sussex. 3 p.m.

ASSOCIATION FOR PLANNING AND SCHOOL OF PLANNING. Exhibition: To be opened by Professor W. G. Holford, 35, Gordon-square, W.C.1, 4.30 p.m. (The exhibition continues open until Saturday, July 6, from 10 a.m.-7 p.m.)

Friday, June 28.

TOWN AND COUNTRY PLANNING ASSOCIATION. Conference on Sudbury and District Plan. Speakers: L. P. Easterbrook and R. L. Reiss. Town Hall, Sudbury, Suffolk.

ROYAL INSTITUTE OF BRITISH ARCHITECTS. Annual Reception. 66, Portland-place, W.1. 8 p.m.

Mr. Lewis Mumford's Visit.

A busy programme of addresses and conferences has been planned for Mr. Lewis Mumford, who arrived in London from the U.S.A. early this week. The Institute of Sociology arranged a reception in his honour at the St. Pancras Town Hall on Tuesday, while yesterday (Thursday) he was due to address the Town Planning Institute at their annual meeting.

Further plans in honour of Mr. Mumford or in which he will take part are:—

June 22.—One-day conference of Institute of Sociology for planners, sociologists, civic officials and social welfare workers. Subject: "The City of the Future." MacMillan Hall, University of London. 9.30 a.m.

June 25.—Dinner in honour of Lewis Mumford. Organised by members of all Parties. House of Commons.

June 27.—Presentation of Howard Memorial by Town and Country Planning Association. Connaught Rooms, W.C. 1 p.m.

July 12.—Lecture on "A World City for United Nations" and small informal reception. R.I.B.A., 66, Portland-place, W.1. 6 p.m.

July 20.—One-day conference of Institute of Sociology. Royal Arch and Egyptian Hall, Edinburgh.

July 25-August 1.—Conference of Institute of Sociology on "Whither Civilisation?" to consider the implications of life in the atomic world. Speakers include Mr. Mumford.

Essex C.C. Architect's Appointments.

THE Essex County Council have made the following appointments in the County Architect's Department: *Chief Assistant Architect (Education)*: Mr. E. T. A. Smith, A.R.I.B.A. *Chief Assistant Architect (General)*: Mr. K. D. Box, A.R.I.B.A.

CORRESPONDENCE

[Whilst we are glad to publish letters on professional and other matters of interest to our readers, it must be understood that we do not necessarily endorse the remarks of correspondents, who will oblige us if they will express their views as briefly as possible.]

"Resettlement Within the Professions."

TO THE EDITOR OF *The Builder*.

SIR,—Many architects, pupils and students returning to the profession from war service will be grateful to you for championing their cause in your excellent and timely leading article, "Resettlement Within the Professions."

It has been my privilege during the last seven months to be in charge of the Architecture and Building Department of the College of the Rhine Army. To the college have come men and women from all trades and professions for courses of one month's duration as a preliminary to this most difficult task of learning to be a civilian again.

During this time 1,000 men connected with the building industry, of which about 100 have been architects or architectural students, have passed through my department. Almost without exception, these men have not put pencil to paper for six years, and many of them find that concentration and effort of will are necessary to overcome the initial inertia of six years' lack of contact with their job. But they are all keen and anxious to get the fullest benefit from the Army Education Scheme to help them face civilian life with greater confidence. By the end of our modest and, alas, all too short course a great change has taken place. New ideas have appeared and men have regained their technical facility and self-confidence to a large degree.

The most difficult future, of course, faces the family man who is only partly trained, and with his particular problems you have dealt most admirably. I would, however, venture to make one forecast, and that is, that the great majority of men, given the chance, will settle down more quickly than you anticipate. We would be the first to agree that we are not *au fait* with the tangled mass of legislation, materials control and licensing procedure that has perforce grown up while we have been away, but we have not forgotten our basic knowledge, and we are keen and anxious to get to grips with new problems. Are we to be denied the chance of playing our part in the future because we have been playing our part in the immediate past?

We are fortunate enough to receive a copy of *The Builder* each week, and its contents are eagerly read, but perhaps it is the advertisements for jobs which interest us most. We often find depressing the regularity with which the demand for "extensive recent experience" occurs, and the fact that closing dates often do not permit of Service men applying. We wonder if we are not being forgotten.

The President of the R.I.B.A. assured serving members in his annual Christmas messages that the profession was anxious for the future welfare of its serving members. Now is the time for the practical expression of that concern by those members who have staff vacancies to fill. As you so admirably sum it up, sir, "Each profession has a responsibility to look after its own."

ALAN REED, Capt., R.E.,
B.A.(Arch.), A.R.I.B.A.

College of the Rhine Army,
B.A.O.R.
June 15, 1946.

(Other Correspondence on page 618.)

MEDIÆVAL LONDON

The cloud-capp'd towers, the gorgeous palaces,
The solemn temples, the great globe itself,
Yea, all which it inherit, shall dissolve
And, like this insubstantial pageant faded,
Leave not a rack behind.

PROSPERO'S words, particularly if the "great globe," in addition to its obvious meaning, is taken as an allusion to the famous Bankside playhouse, were prophetic of the fate of mediæval London. Fire, the ravages of time and man's own destructiveness have obliterated that wonder city almost entirely. True, some substantial elements remain—the Tower, Westminster Abbey, St. Bartholomew the Great, several other churches, a few domestic buildings and other fragments—but for a comprehensive idea of the appearance of mediæval London we have to rely on graphic records.

Fortunately there were several artists and cartographers at work diligently recording London in mediæval and later times—Haiward and Gascoyne, Wyngaerde, Agas, Norden, Visscher, Hollar, Leake—and from them we have inherited pictorial records that give a vivid, if sometimes not entirely accurate, idea of the picturesque city of their day.

As a recreator of mediæval London there is no one to compare, in modern times at least, with the late H. W. Brewer. For more than a quarter of a century, until his death in 1903, Brewer, as Mr. Herbert A. Cox records in the new edition of "Old London Illustrated,"* was one of the most valued and original contributors to *The Builder*, providing chiefly a remarkable series of "restorations" of the principal buildings of mediæval London. "For all his archæological creations he spared no trouble in obtaining material," writes Mr. Cox. "He was a devout member of the Roman Catholic Church, and to this fact, no doubt, may be traced his partiality for mediæval buildings, especially those associated with religious orders."

Seventeen of Brewer's great drawings are reproduced in this book. They represent: The City of London and Environs; The Tower of London; Aldgate; Cheapside; Old St. Paul's; Ludgate; Newgate; Ely Place; Old London Bridge; Westminster; and Nonsuch House, Old London Bridge. The descriptive articles by Mr. Cox which accompany the drawings are in themselves scholarly essays, revealing an intimate knowledge of the period. Drawings and articles combine to give a clear and convincing picture of mediæval London, in general and in detail. The drawing of Ludgate reproduced on this page is typical of Brewer's conscientious draughtsmanship.

In addition to the drawings by Brewer there are many other interesting illustrations, two of which are reproduced in this issue. The illustration in colour, the oldest view of London, is of extraordinary interest. It is from a book of poems, now in the British Museum, collected or composed by Charles, Duke of Orleans, who was captured at the Battle of Agincourt. He was imprisoned in the Keep of the Tower for 25 years until his ransom of 300,000 crowns was paid. Descriptive notes in the book pick out and explain the special points of interest of the picture. The other drawing reproduced is of the interior of St. Bartholomew the Great, Smithfield, by Mr. A. C. Fare, R.W.A., an impressive example of Norman work which has fortunately survived the bombing of the recent war. The book includes reproductions of other drawings, of historic interest, among them—part of Agas's map of London, 1560; Haiward and Gascoyne's bird's-eye view of the Tower, 1597; and Hollar's bird's-eye view of London, 1647. Another drawing shown, John of Gaunt's Chantry, Old St. Paul's, by Hollar, is of special interest, inasmuch as it reveals one of the sources of Brewer's information for his own reconstructions. It is given in the book opposite Brewer's drawing of the north aisle of the east end of Old St. Paul's, in which the monument appears, and shows the sympathetic and imaginative way in which the artist handled his material.

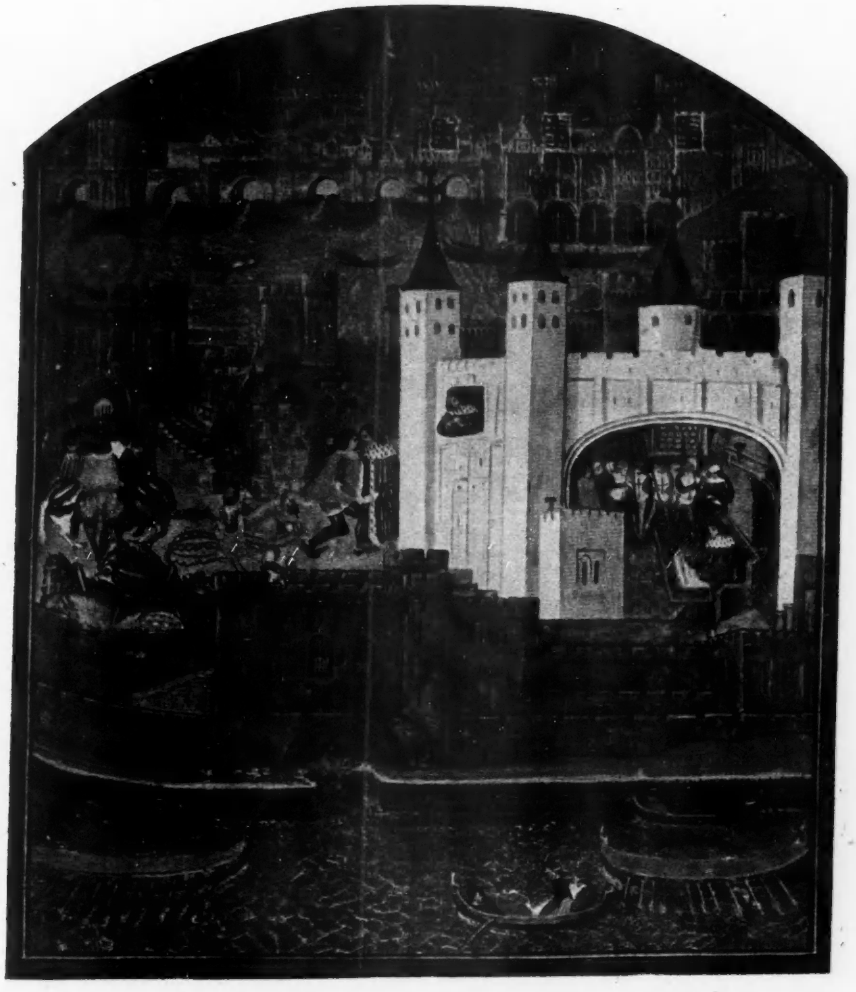
Mr. Cox does not confine his attention to Brewer's drawings only. He goes back into the Norman period and beyond to Roman times, and in his preface writes interestingly of the Roman City Wall, our knowledge of which has been considerably increased by the recent bombing. The reason for the deviation of the wall west of Cripplegate has long been a puzzle to archæologists. Mr. Cox advances two possible theories: (1) that the ground at this north-west corner was marshy, and (2) that before the wall was built the Romans may have had an amphitheatre here, and suggests that when foundations of destroyed buildings are removed and excavations for those to take their place are made, probably much below the usual surface, watch should be kept for any indication of a previous use of the soil.

"Old London Illustrated" makes its appearance in a new edition at a peculiarly appropriate moment. Popular interest in old London is rapidly increasing, and visitors from the provinces and from overseas frequently desire information about the London that existed before the Great Fire and the Dissolution of the Monasteries. Here is a convincing and absorbing visualisation of that picturesque city that was such a source of wonder to travellers in the Middle Ages. It is a book that should appeal to antiquarian and layman alike.

* Old London Illustrated. London in the XVIth Century. Drawings by H. W. Brewer and Descriptive Articles by Herbert A. Cox, F.S.A., Hon. A.R.I.B.A., etc. Eighth edition, enlarged and revised. "The Builder," Ltd. Price 10s. 6d. net.

From "Old London Illustrated."

LUDGATE (FROM THE WEST) SHOWING OLD ST. PAUL'S
FROM A DRAWING MADE IN 1895 BY THE LATE H. W. BREWER

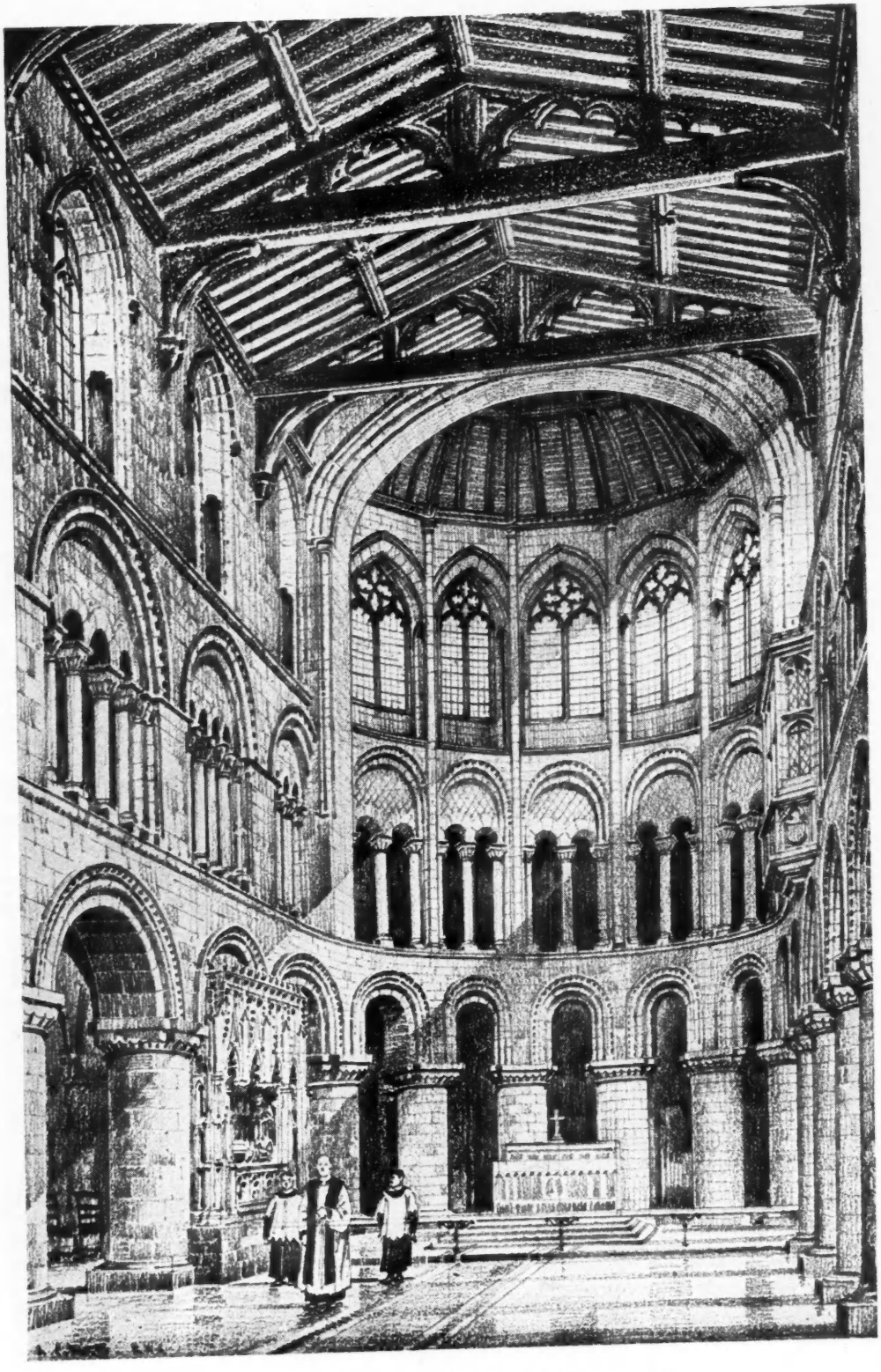


Reproduced by courtesy of the British Museum.

THE OLDEST ILLUSTRATION OF LONDON

From a book of Poems collected or composed by Charles, Duke of Orleans, who was captured in 1415 at the Battle of Agincourt.

(See article on "Mediæval London.")



ST. BARTHOLOMEW THE GREAT, SMITHFIELD
From a Drawing by A. C. Fare, R.W.A.

View Looking into Centre Court.

ROYAL TENNIS HALL, STOCKHOLM

STURE FRÖLEN, ARCHITECT
MAX GUMPEL, ENGINEER

THE FORMATION OF A TENNIS CLUB UNDER THE AUSPICES OF H.R.H. THE Crown Prince of Sweden, which took place in October, 1896, under the title K.L.T.K. (Kronprinsens Lawn Tennis Klubb) was of decisive importance for the tennis enthusiasts in Sweden. A hall for indoor tennis was erected in the same year at Idrotts Park, where also were laid a number of ordinary courts. Four years later, in December, 1900, a new hall, situated at Sturevägen, was officially opened, and, at the same time, the name of the club was changed to K.L.T.K. (Kungliga Lawn Tennis Klubben—the Royal Lawn Tennis Club). The hall, however, was entirely destroyed by fire in March, 1920, and the club thus lost their own premises. A new and imposing hall was built by a private syndicate in 1924, the plans for which had been drawn up by Torben Grut, the Swedish architect, and his design has been used as a model for a number of halls all over the country.

The growing interest in the game, however, caused a demand for more and more courts, and June, 1930, saw the completion of the Tennis Stadium, which supplemented the previously finished courts at Ostermalm. The question of a new home for the Royal Tennis Club was raised on several occasions, and when the present King, Gustaf V, subscribed kr.50,000 to the club fund, he expressed a wish that his donation should be regarded as a contribution towards the creation of new premises for the club. Mr. Max Gumpel, a civil engineer of note, was entrusted with the task of designing the hall which was to be erected at Lidingövägen on Norra Djurgarden. His plans were accepted, and in 1934 the King had the pleasure of officially opening his own tennis hall.

The detailed plans and drawings have been worked out by Mr. Sture Frölen in accordance with the building programme decided upon by the committee. This programme was subject to considerable expansion in the course of the building progress. Although the hall was mainly intended for tennis matches and competitions, its use for other purposes had also to be taken into consideration.

The hall, which measures 128 by 50 metres, houses a centre court for match and exhibition play, and four practice courts, two on either side of the centre court. This is dimensioned in accordance with the standard measurements for international tennis. In front of the hall are the administrative premises, which contain a large entrance-hall, offices for the maintenance staff, and the private suites of the King and Crown Prince.

To the left of the entrance-hall is a restaurant and a small dining-room. The first floor houses the club-rooms, offices, and the manager's and engineer's private residences. On the floor below the entrance-hall are to be found the dressing-rooms, shower-baths, toilets, as well as rooms specially fitted out for ultra-violet-ray treatment and massage. In the basement below this floor are the boilers, and adjacent to the boiler-room a well-equipped laundry has been installed.

The existing ground conditions have been utilised to a great extent to obtain a direct road connection with the two storerooms which occupy the two floors below the tennis-courts. These rooms have a floor space of 10,000 sq. metres. If required at a later stage, provision can be made for a siding to be extended from the neighbouring railway line to Värtan.

The restaurant kitchen is on the level with the centre court and the upper storeroom. This kitchen is equipped to prepare meals for 1,000 people at a time in addition to the ordinary requirements of the restaurant, and on banquet occasions the required number of tables can be placed on the courts and the meals served from the same kitchen, which is fully electrically operated and well equipped.

The fixed seating accommodation for the spectators is calculated to seat 2,372 persons, with standing room for an additional 1,000 people. Further seating and standing accommodation can be provided at short notice at the two ends of the court for another 2,000 persons. When the hall is used for other purposes than tennis matches, the court itself can provide seating accommodation for an additional 1,320 people, with the aid of removable benches or forms. A small gallery, capable of accommodating 323 persons, projects out from the first floor of the administrative portion of the building. The maximum number of spectators for the various events at tennis, squash or gymnastic displays is 3,695, of which 2,695 can be seated; at concerts, lectures, etc., 5,015, of which 4,015 are seated; at boxing or wrestling matches, 5,957, of which 4,957 are seated. When the portable accommodation is used, this provides standing room for a further 2,000 people.

The Royal box is set in the middle of the seats along the side of the court and is surrounded by a number of boxes, privately owned for a certain number of years by certain members of the club.

When boxing or wrestling matches are to be held in the hall, a platform or rostrum is built up to form the ring on the centre court, and special lighting equipment is lowered from the ceiling. This rostrum is also used for concerts, stage shows, etc., but on these occasions it is moved to one end of the court. Along each side of the courts and extending the full length of the hall there is a 5 metres wide gangway or promenade.

The restaurant was considerably extended in the course of erection, and the kitchen premises were greatly enlarged in order to cope adequately with the work thrown upon it when large dinners or banquets were to be held in the building. All the various service rooms have been provided with folding or sliding doors to allow extra space possibly required for a variety of purposes on different occasions.

The walls in the large dining-room are partly panelled in old oak. In order to give an impression of space in the long but somewhat narrow room, the inner wall has been decorated by a large painting depicting various tennis attitudes on a background of old Djurgards style. This has been painted by the two artists Carl-Eric Boden and Olle Nyman. When the building is used for dances, the large entrance-hall constitutes the ballroom. The glass-mounted walls between this and the dining-room are then folded back whereby a spacious hall and restaurant combined is obtained.

A loud speaker system with a total of 10 speakers has been installed by Messrs. Aga-Baltic. The A/B Radiotjänst have made special arrangements to facilitate a "hook-up" to the national broadcasting system if and when required. The gallery contains two special radio cabins, equipped in accordance with all the latest sound technical developments and principles. These rooms are so situated that they command an excellent view over the centre court.

Illumination.

With regard to the daylight effect, it should be noted that the area of the glass roof has been calculated according to the amount of light required on the courts, and with a view to provide as even a daylight effect as possible over the entire area. Sunlight is limited to any desired extent by means of roller blinds manipulated from the gangways. The latest equipment for artificial lighting has been installed and this consists of fluorescent tubing.

A ball game as fast as tennis makes great demands on the lighting requirements. In addition to providing a powerful illumination, the equipment must of necessity be entirely free from glare on all positions of the courts. The ball must be easily visible in its travel, no matter how fast the pace, and the ball being white, the background has to be in a darker hue in order to show it up satisfactorily. The most suitable colour for the background has been found to be dark green. The source of illumination has been placed along and outside the side lines of the courts.

The most common method adopted to obtain "glarefree" lighting until fairly recently was the indirect lighting effect provided by the so-called tennis fittings which consist of deep, bowl-shaped metal reflectors into which have been inserted lamps of 750 to 1,000 watts. This type of lighting, however, is not really efficient and consequently uneconomical in use. In the new hall the indirect type of lighting was discarded in favour of the direct lighting method obtained by means of neon tubes which in themselves are of approximately the same low density of light as the secondary reflectors in the case of the indirect lighting principle. A considerably higher degree of efficiency in the lighting effect is thereby obtained.

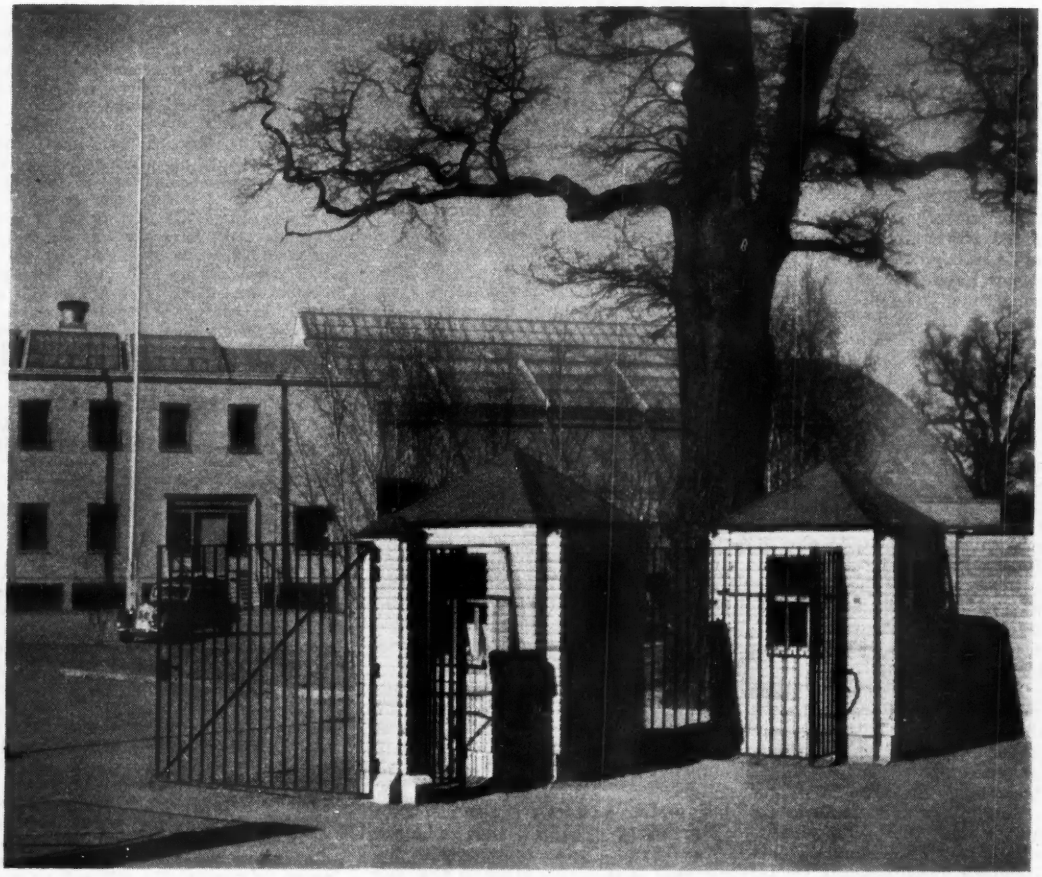
A further advantage of the new type of lighting arrangement is the fact that a continuous stretch of illuminated surface on each side of the court is produced, and this uniform lighting effect is more pleasant and restful to the eye than a large number of separate lighting units.

The centre court illumination is arranged in two rows or banks of 112-200 Dlm lamps, and each of the practice courts is also fitted with two rows of 72 lamps per court. The centre court lights are suspended 6.80 metres above the floor at a distance of 2 metres outside the side lines, but in the case of the practice courts, the lamps are fixed 6.50 metres above the floor and 1.50 metres from the side lines.

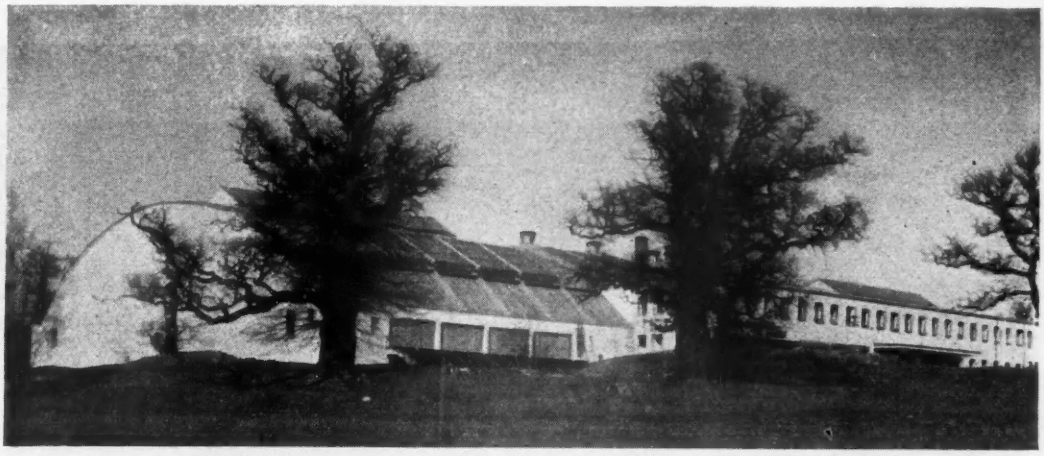
The consumption for the centre court alone totals 5.8 Kw. and the illuminating power is 130 lux. As a comparison it may be mentioned that the main court in another tennis hall in Stockholm, where the indirect type of lighting equipment is used, has a light consumption of 14.5 Kw. with an average illuminating power of 105 lux.

The Floor.

A great deal of experimenting has been carried out in order to find the most suitable surface covering. The ball bounces too fast on a wooden floor, with the result that the various strokes in use tend to become purely reflexive movements. When a court was laid down at Rasunda in 1939, an experiment was carried out with a new type of surface often used in Germany and mainly consisting of a mixture of asphalt, granulated cork and sand. This was found fairly satisfactory, and the building committee decided on using this type of surface in the Royal Tennis Hall. The result, however, did not come up to expectations, but further experiments with different kinds of material will be continued.



The Main Entrance, showing Turnstiles.



ROYAL TENNIS HALL, STOCKHOLM. From the South-West. On left is one of the Practice Halls. On right, the Administrative Building with Exhibition Court behind.

Ventilation.

The planning and installation of the ventilating equipment received very careful consideration. This was essential in view of the fact that the attendance might vary from a few score of players occupying the practice courts to 5,000-6,000 people attending championship matches.

During the cold season the hall is heated partly by radiator elements and partly by eight ventilation units, four of which are used for the practice courts, and the other four for the centre court. Their function is to withdraw the cold air along the floor through ventilator gratings arranged along the sides immediately above the courts. After heating the air to the required temperature, it is expelled through another set of gratings fitted about 3 metres above the topmost row of seats in the seating accommodation for spectators.

When matches are played in cold weather, the ventilation units assist in adjusting the temperature by a cooling function and help to get rid of the surplus heat always generated wherever large crowds gather in an enclosed space. The centre court units can operate in reverse, so that cool air can be supplied to the court through the ventilators immediately above same. Heated, fresh air can also be introduced to the practice courts. The evacuation of stale air is effected by five large fans fitted in the roof. All the units are equipped with automatic regulating devices for the adjustment of the temperature according to requirements. This, therefore, can be controlled so that the air above the courts can be kept at a lower temperature than over the seating and standing accommodation for the spectators.

CONSTRUCTIONAL DETAILS

The following notes, like the rest of the article, are translanted from a description supplied to us in Swedish :

1. The Foundations.—In certain parts of the ground, the virgin rock showed through, and this had to be blasted. In other parts, however, it was found fairly deep, and covered by a layer of peaty soil and porous clay. The foundations, therefore, had to be laid on bedrock in their entirety, and this was reached in the deep areas by means of concrete piles. These piles almost penetrated the soft clay by their own weight, and had only to be driven down forcibly through the soil to rest on rock.

The fact that the clay was found to be of such a porous and soft composition caused an unexpected setback, and gave the builders a problem to solve. The intention was to have the ground outside the main entrance somewhat higher than the cellar floor, after filling to required level. There was, therefore, the risk that the inward pressure might force the cellar floor upwards. If such a displacement occurred, the piles supporting the walls would inevitably collapse, with a subsequent collapse of the whole building.

A preliminary investigation showed that the risk was considerable, and a geological survey of the prevailing conditions was therefore undertaken. The degree of cutting strength of the clay was found to be between .07 and .05 kg. per. sq. cm., and this would be insufficient to prevent a displacement.

The foundation-bearing ground, consequently, had to be reinforced, and this was done by means of wooden piles, driven into the ground covering the entire length of the main entrance to an average width of 5 metres. The piles, varying in length from 8 to 12 metres, were driven down to bedrock and spaced 1.20 metres apart with an angle of 4 : 1 in relation to the façade of the building. The making up to the required level was then undertaken and completed.

2. The Hall.—The carcase is of reinforced concrete. The distance between the stanchions for the long walls is 5.10 metres, whilst the spacing of the uprights for the gables is 7 metres. The bearer girders consist of doubly reinforced concrete beams, extending uninterruptedly between the stanchions. The entire concrete framework was built up from specially selected materials of first-class quality, and the "Ballsta" method of surface vibration was adopted. This also reduced the weight by about 100 kg. per sq. metre.

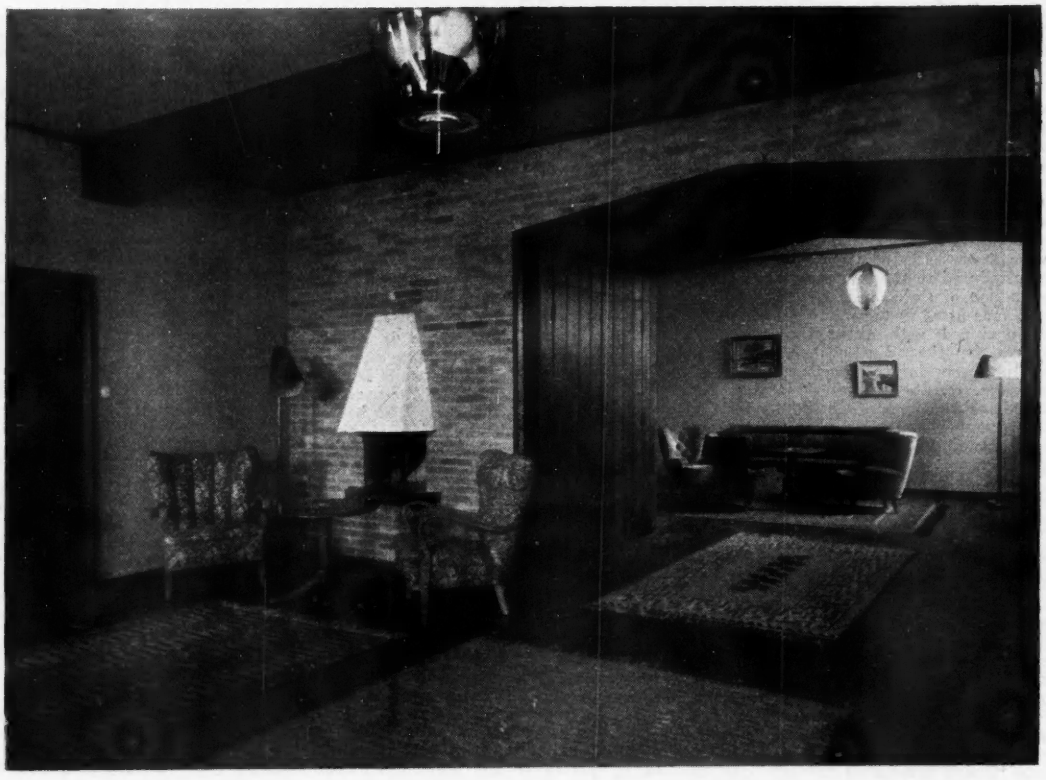
Reinforced concrete girders and beams were made from A-cement Btg 275 kg. per cubic metre. For the reinforcement for all bent or drawn portions of the framework it was decided to use steel rods (K 40 s). For the complete set of bearer beams in the plane of the centre court, the moveable loads total 500 kg. per sq. metre, whereas the loads for the practice courts and the gangways total 400 kg. per sq. metre. The overall thickness of the girder plates is 120 mm., as the wearing surface is included in the constructional height. The girders immediately below the steel arches carrying the roof serve, at the same time, as anchorage for these.

3. The Roof.—This is composed of "Siporex" sheets inserted between arches of steel. The sheets, each measuring 5 metres by 145 mm., were laid on the lower flanges of the steel sections. The distance between the roof trusses or joists had then to be 5.10 metres in order to allow space for the plates. The arches are made of double-flanged steel girders, forming a span of 48.50 metres and a height at centre of 10.80 metres. Reinforcement against lateral thrust is formed by the lattice frames of the glass panels which are joined to the tie beams. The steel sections are bent at a certain number of equidistant points, so that every 3 metres between these bends remain perfectly straight, and the sections were prefabricated in five portions, which were welded together on the site. The weight of these arches is 24.80 kg. per sq. metre of actual roofing, and the weight of the tie beams 1.50 kg. per sq. metre. To this has to be added the weight of the steel clamps in the sockets of the lantern frames, which are made of lattice bars according to the T.V. system, and therefore capable of supporting two sheets of glass, and upper or outside pane of 3-mm. clear glass and a lower or inside sheet of 6-8-mm. spot-welded wire-reinforced glass. The greatest glass length is 3.80 metres. The saddle roof lanterns have a slope of 30 degrees, and the other lanterns a slope of 26 and 20 degrees respectively. The sockets are made of "Siporex" sheets set in steel clamps.

For roof covering .56-mm. galvanised sheet iron has been used which is fixed to the "Siporex" sheets by folding. The channels for the disposal of rain water are laid between the lanterns over the arches and the required fittings were set on the upper joints of the lantern frames. The end walls of the building are of bricks laid between steel stanchions which carry the last portion of the roof and act as bearers between the roof joists and the tie beams.

The administrative building which measures 62 by 10 metres has two floors below ground and two above. The bearer girders in this case also consist of reinforced concrete beams between concrete

The Entrance Hall.



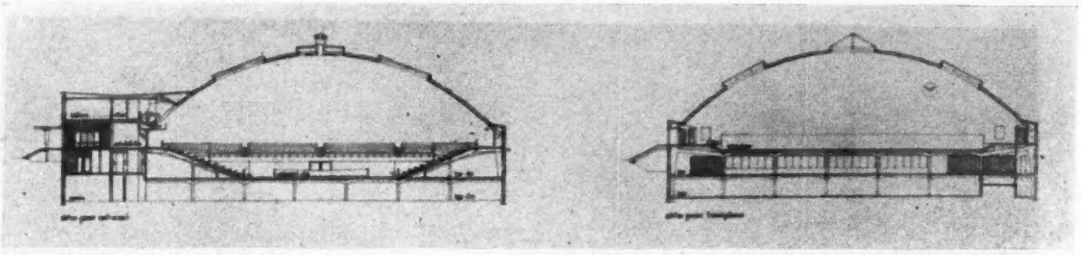
ROYAL TENNIS HALL, STOCKHOLM. Small Dining-room and Suite for Private Parties.

ROYAL TENNIS HALL, STOCKHOLM. The Centre Court, seen from the Gallery.

stanchions and are supported by the façade and an inner line of uprights spaced 5.10 metres apart. The same building method has been adopted for the floor space under the boiler room, but the rest of the basement floor is laid direct on the ground.

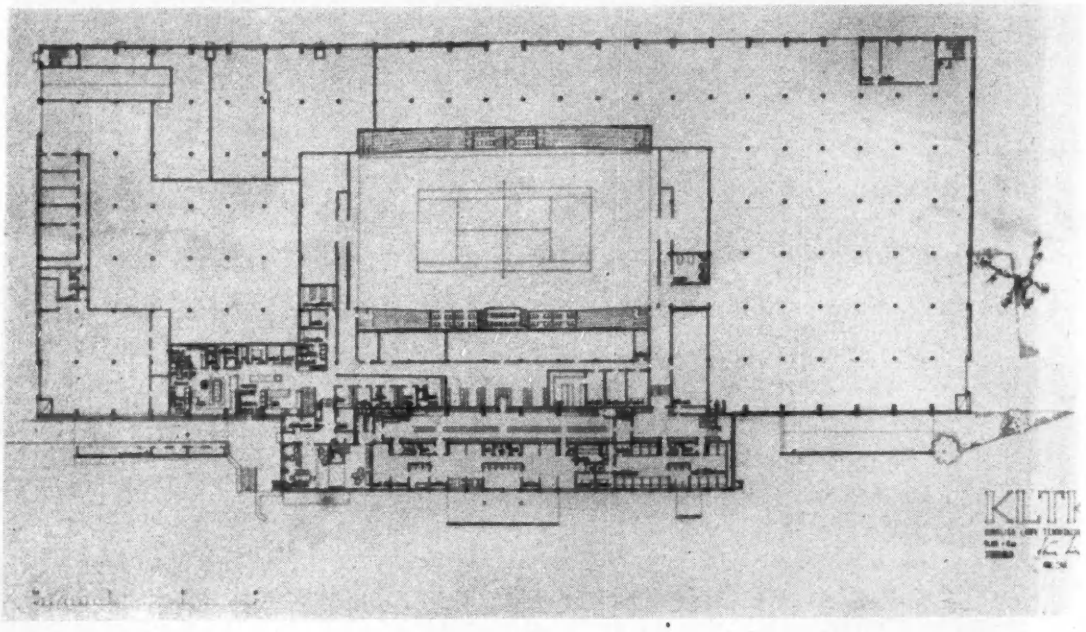
The outside walls are of 4½ in. yellow facing bricks with a rear wall behind of 9 in. bricks. The ceilings are heat insulated, and the space between floor and ceiling is filled with 200 mm. granulated slag and a 1.5 mm. thick layer of glass wool. The outer roof is of wood covered with .56 mm. galvanised sheet iron which also form the slopes for rain water drainage and spouts. The total building costs together with all necessary fittings amount to approximately 3.5 million kroners (about £200,000 at current rates).

The building committee consisted of the following members: Ernst Nilson, director; Torsten Grönfors, solicitor; Carl-Eric Pettersson, director; Max Gumpel, civil

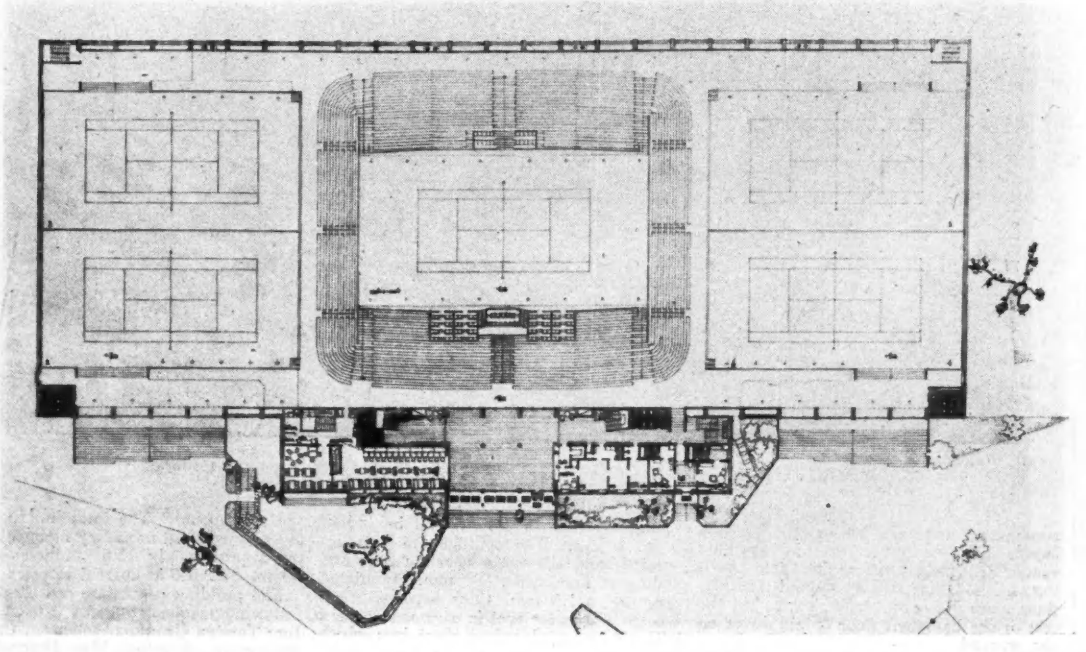


Section through Centre Court.

Section through a Practice Court.



Above : Mezzanine Plan. *Below* : Ground-floor Plan.



engineer; and Captain Kurt Zetterberg. Martin Hanzon, civil engineer, acted as controller and general adviser. The building contractors were Gumpel and Bengtson. Fittings supplied and installed by Jakobsson and Widmark. The heating installation and plumbing were designed by Ragnar Larsson and the ventilation system by Sven Romedahl.

Sture Frölen acted as architect for the building plans and his collaborators were: Jörg Buddee, Eskil Gröndal, Edvin Bangh and Olof Ostberg, who was also responsible for the general furnishing and indoor decorations. Bertil Brisborg had charge of all matters relating to the illumination of the hall.

BOOKS RECEIVED

THE ANATOMY OF THE VILLAGE. By Thomas Sharp. (Middlesex: Penguin Books, Ltd.) Price 2s. 6d.

THE ENGLISHMAN BUILDS. By Ralph Tubbs. (Middlesex: Penguin Books, Ltd.) Price 3s. 6d.

BUILDING MECHANICS. By T. J. Reynolds. (London: English Universities Press, Ltd.) Price 6s. 6d. net.

GLASS AND GLAZING. By D. M. J. Davidson, A.R.T.C. (London: Crosby, Lockwood and Son, Ltd.) Price 5s.

HILL'S TOWN AND COUNTRY PLANNING AND THE RESTRICTION OF RIBBON DEVELOPMENT, 3RD ED. By H. A. Hill, M.A. (London: Butterworth and Co. (Publishers), Ltd.) Price 51s. 3d., post free.

INDEX TO THE WATER ACT, 1945. Edited by Delwyn G. Davies, B.Sc.(Eng.), A.M.I.C.E. (London: Water and Water Engineering.) Price 3s.

TO BE A SURVEYOR. By Arthur J. Willis. (London: Methuen and Co., Ltd.) Price 6s.

BRICK STRUCTURES. Revised and Edited by Ralph P. Stoddard. (London: McGraw-Hill Publishing Co., Ltd.) Price 10s.

Government Appointments.

The Association of Supervisory Staffs and Engineering Technicians, Premier House, Southampton-row, London, has published a booklet entitled "Your Future and Status," which takes the form of a memorandum on the Government Report on higher appointments. The price of the booklet is 9d.

BUILDING MATERIALS

THEIR ARCHITECTURAL USE

"Architectural Use of Building Materials" (Post-War Building Studies, No. 18), has now made its appearance.*

The Committee, convened by the R.I.B.A. in April, 1942, to report upon the Architectural Use of Building Materials, were asked to deal with the question primarily from the æsthetic point of view. As their work proceeded, the Committee found it impossible to confine themselves strictly to that purpose. If it is one architectural crime to use beautiful materials which are constructively unsound, it is another to use sound materials which are æsthetically offensive. As the Committee put it in the Introduction to their Report, structure cannot be divorced from æsthetics.

The Report considers materials not only by themselves, but also in right relation to other materials and to surroundings, and recognises the influence of materials on architecture itself. It insists strongly upon their use by trained designers and skilled craftsmen—even the best materials in the hands of poor users merely produce poor results. This is especially emphasised in Sections V and VI, dealing with Concrete, *in situ* and precast. Special consideration should be given to the training of designer and craftsman; and of great importance is the expansion of general education beyond exclusively literary education, to include education in intelligent observation and the use of the eyes. Architecture is a cause as well as an effect; it not only expresses a people, it also goes far to make them. If it is to do this, the people whom it serves must have eyes and judgment.

The artistic standards of the new materials may differ from those of the old, and they demand more skill to produce successful and enduring results than the old—a further reason for careful training. It may be necessary in using new materials to throw aside old building traditions, but this should not be done without full knowledge of those traditions and understanding of the reasons for their use. Where traditional shapes and features are superseded, their functional equivalent must be provided. Architects should make much more use of British Standards in order to take advantage of information available.

Good workmanship requires adequate time for the various building processes to mature. Many modern problems arise directly from the rushed job. The economies which can be secured by using cheap materials are often fallacious, involving heavy recurrent charges for maintenance. Nor should economy be carried so far as to destroy æsthetic satisfaction.

Building for new needs is important, and is recognised, but it is not the whole duty of architecture, even in a period of far-reaching change. Architecture includes the expression of permanence.

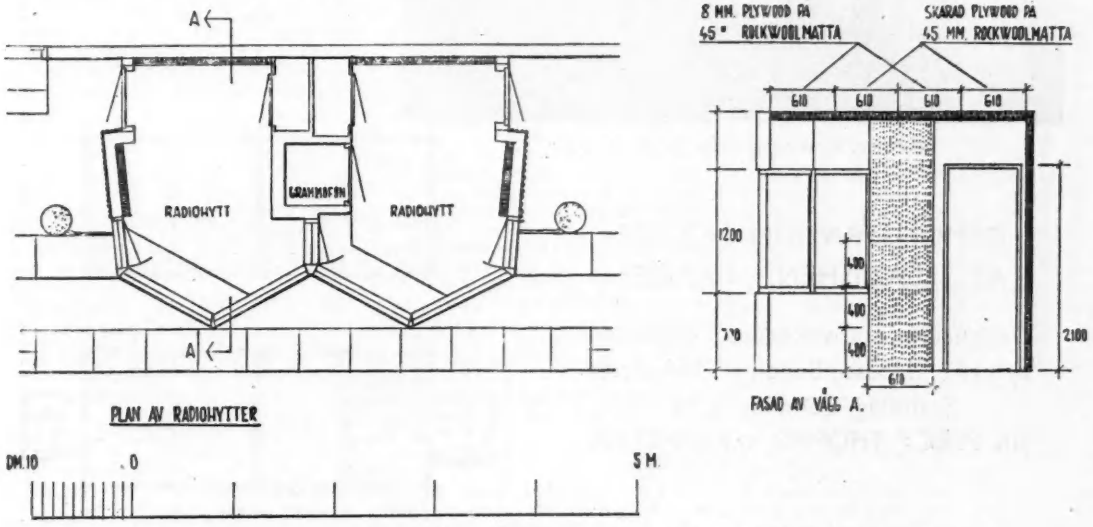
The sections which follow the Introduction deal with the various classes of materials, such as stone, brick, concrete, metals and the like, and may be left to speak for themselves, and special attention may be called to the discussion of plaster in Section X, which sums up concisely the results of recent research into the use of this difficult material. The illustrations, which range from temporary bungalows to churches, bridges and public buildings, are presented without reference to date, place or names of buildings and designers, so that they may be judged purely on their merits and the light they throw upon the text, without the interference of other considerations.

* Post-War Building Studies, No. 18: "The Architectural Use of Building Materials." Report of a committee convened by the Royal Institute of British Architects. Published by the Stationery Office, price 2s. 6d. net.

Tree Planting in Roads and Streets.

THE improvement in appearance of urban and suburban areas by incorporating trees in the design and layout of roads, is discussed in a Ministry of Town and Country Planning circular (No. 24) recently published. The matter has lately been under consideration by the Town and Country Planning and Transport Ministries, and it is felt that fresh attention should be given to it at the present time, when extensive reconstruction schemes are being put in hand.

The circular, which is addressed to local planning authorities throughout the country, points out that grants towards the cost of tree planting are made by the Ministry of Transport and includes an appendix listing trees suitable for planting on open verges, pavements, etc., with notes on soil and climate factors.



ROYAL TENNIS HALL, STOCKHOLM. Plan and Constructional Detail of Broadcasting Cabin.

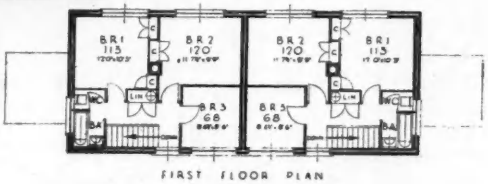
The Main Elevation.

Kitchen, showing entrance to Utility Room.

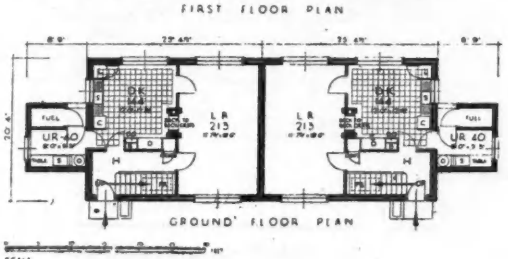
THESE HOUSES, DESIGNED IN A national competition organised to demonstrate the new and smaller-type house not exceeding 900 superficial feet, are brick-built with cavity walls, finished with Snowcem. Foundations are of concrete with a lead damp course. The ground floors are concrete, finished with colourphalt surfacing. The plan shows a dining-kitchen with utility room beyond. A back-to-back grate serves both kitchen and living-room as well as hot-water supply. Plumbing is frost-protected, and is in copper on the one-pipe system. The builders are Messrs. F. and R. Lewis (1927), Ltd., of Cardiff, who, as being registered with the National House-Builders' Registration Council, guarantee that each house is built to a standard specification and is examined during construction, and guarantee the purchaser for two years against any structural fault resulting from non-compliance with the specification.

DEMONSTRATION HOUSES AT LLANISHEN, CARDIFF

Designed in a Competition organised by the House-Building Industries Standing Committee by SIR PERCY THOMAS, O.B.E., P.R.I.B.A.

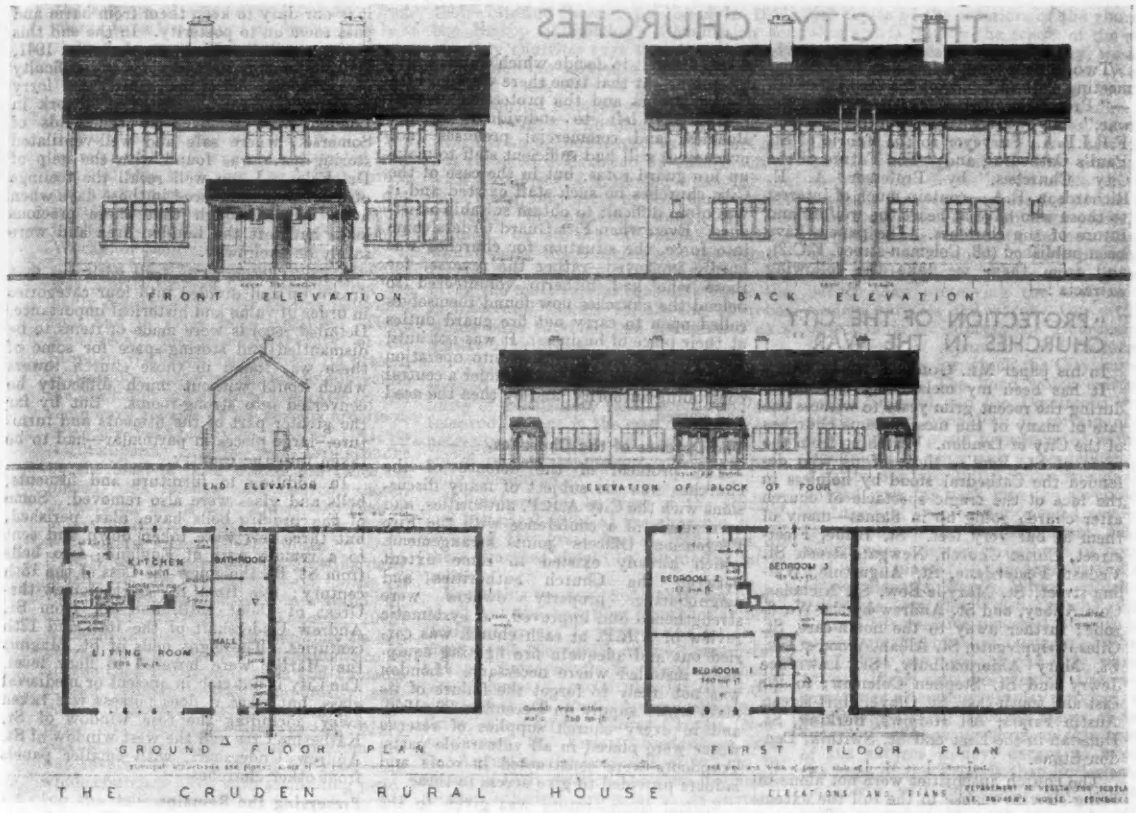


FIRST FLOOR PLAN



GROUND FLOOR PLAN

SCALE



THE "CRUDEN" RURAL HOUSE

FOR DEPARTMENT OF HEALTH FOR SCOTLAND

A Scottish group of contractors, incorporated as Cruden Houses, Ltd., have undertaken to erect 3,000 Cruden houses for Scottish local authorities to plans and at prices which have been agreed between the Secretary of State for Scotland and the contractors.

Bills of Quantities: Bills of quantities have been prepared, but will not form part of the contract. The bills will function solely as a schedule of prices for variations in external works and foundations and for such minor adjustments as the exigencies of the site and the supply position may render necessary.

Foundations and Underbuilding: The standard foundations consist of concrete walls 9 in. thick either precast or cast *in situ*. Footings are normal. Honeycomb sleeper walls are in concrete blocks. Standard depth of foundations is 2 ft. 4 in. from floor level to underside of concrete strip foundation.

Party Wall: The party wall to have two leaves of clinker or breeze concrete blocks 2½ in. thick separated by 1 in. cavity.

Steel Frame: The frame is of cold rolled steel sections with stanchions at 3 ft. 6 in. centres. The steelwork is welded into panels 7 ft. wide by two storeys in height, the panels being bolted together on site and rag-bolted to foundations. At first floor cold rolled steel beams at 3 ft. 6 in. centres are bolted to the steel stanchions. Roof trusses of cold rolled steel sections occur at 3 ft. 6 in. centres, and carry a grid formed of 1 in. by 1 in. steel angles to which concrete tiles are secured.

Outer Wall Cladding: Formed of blocks of vibrated concrete or Cheecol light weight concrete 3 ft. 6 in. long by 9⅛ in. high of a minimum thickness of 2 in. The blocks will not be bonded, all vertical joists occurring on the steel stanchions. The blocks are separated from the steelwork by a layer of bituminous felt applied to the face of the stanchions, and are secured to the latter by galvanised ties having tails grouted into the vertical rebated joints between the blocks and bolted through the stanchions.

Horizontal joints are tongued and grooved, and are sealed in "Bit Mastik" applied along the top of the tongues. External faces of the blocks are finished in a rendering coat of Mortone, Tyrolean or other approved finish. This cladding may be varied to suit local circumstances by agreement.

Chimneys: Breasts and flues will be formed of precast concrete units of an approved type having linings integrally cast.

Roof Covering: The roof to be covered in interlocking concrete tiles in accordance with B.S.S. 550 of an approved make, colour and texture, wired to steel grid with copper wire, and having an under layer of Sisalkraft. Eaves fascia, soffit and barge boards are of pressed steel secured to steelwork.

Porches: The porches consist of small lean-to roofs secured back to steelwork; the roofs are covered with interlocking concrete tiles of the same type as those used on the main roofs. Trellis screens form the ends of the porches and a central screen wall under the porch gives privacy to the front entrance doors.

Floors: The ground floor to be formed of ⅞ in. thick tongued and grooved boarding not exceeding 6 in. in width, laid on 5 in. by 2 in. timber joists at 18 in. centres with a layer of Sisalkraft draped over joists. The first floor is to be formed of ⅞ in. thick boarding as described above, laid on 3 in. by 2 in. timber joists at 16 in. centres spanning between steel beams at 3 ft. 6 in. centres formed of 7 in. by 2 in. cold rolled steel channels.

Ceilings, Partitions and Internal Wall Linings: The internal lining to the external walls to consist of prefabricated timber frames 8 ft. high by 3 ft. 6 in. wide, lined with fibreboard, $\frac{3}{16}$ in. to ⅜ in. in thickness as available, filled with 1 in. thick fibreglass secured in position by a layer of Sisalkraft fixed to the back of the timber frames, which are glued up with Beetle plastic cement. Frames are jointed together with loose tongues at vertical joints and are clipped to flanges of stanchions. Partitions are formed of similar frames lined on both faces with fibreboard as described above, and filled, where required, with 1 in. fibreglass.

First-floor ceiling as on ground-floor ceiling but with additional insulation of aluminium coated waterproof paper or Sisalkraft and secured to roof trusses by metal brackets. Party walls to be lined on both sides with fibreboard as described above, secured to framed timber grounds. All joints in fibreboard to be covered with a strip of an approved type.

Stairs: To be framed up in timber prefabricated in two sections.

Windows: Wooden casement windows secured in concrete surrounds. Mullions and jambs finished internally in metal.

Built-in Cupboards and Fitments are provided.

Heating and Cooking: "Ure" or equal back-to-back grate with washboiler combined to be installed in partition between kitchen and living room.

THE CITY CHURCHES

Two papers read before the last annual meeting of the Friends of the City Churches —" Protection of the City Churches in the war," by Mr. W. Godfrey Allen, F.R.I.B.A., Surveyor to the Fabric of St. Paul's Cathedral, and " The Future of the City Churches," by Professor A. E. Richardson, R.A.—contain much of interest to those who have at heart the welfare and future of the churches. The papers have been published (68, Coleman-street, E.C.2), and from them we take the following extracts :—

" PROTECTION OF THE CITY CHURCHES IN THE WAR "

In his paper Mr. Godfrey Allen said : It has been my melancholy experience during the recent grim years to witness the fate of many of the most famous churches of the City of London. Watching from the roofs of St. Paul's, those of us who defended the Cathedral stood by helpless in the face of the tragic spectacle of church after church going up in flames—many of them at our very feet. St. Bride, Fleet-street, Christ Church, Newgate-street, St. Vedast, Foster-lane, St. Augustine, Watling-street, St. Mary-le-Bow, St. Nicholas, Cole Abbey, and St. Andrew-by-the-Wardrobe; further away to the north-east, St. Giles, Cripplegate, St. Alban, Wood-street, St. Mary Aldermanbury, St. Lawrence Jewry and St. Stephen Coleman; to the east and south-east, St. Olave, Hart-street, Austin Friars, All Hallows, Barking, St. Dunstan-in-the-East and St. Swithin, London Stone.

The church authorities were not alone in being slow to realise to the full the extent and nature of the danger ahead. The great fire raid of December 29, 1940, when commercial premises, City halls and other ancient buildings as well as churches, were destroyed, showed how ill prepared the City was to meet the onslaught of German ruthlessness. When it became evident that cases of damage to London churches by enemy action were likely to be so numerous that they could not be handled separately, the Bishop of London set up a Diocesan Committee to deal with the problem as a whole. But in view of the quite peculiar position and great artistic and historic importance of the City churches the Bishop decided to constitute a special Committee for the care of these churches, known as the Bishop's Committee for the Care of the City Churches, to deal with war damage claims and loans and to advise on fire prevention arrangements and measures to preserve damaged and undamaged churches as well as their fitments, furniture and memorials. It is about the work carried out to the City churches during the war that I have been asked to speak to you this afternoon, though at the outset I must explain that in the short time allowed to me only a broad survey can be given of the wide field covered during more than five years' work.

The situation which faced the Committee, and the Church authorities and their architects, in 1941 was, indeed, a grave one. The Battle of London was at its height and every night some further toll was made on the rich inheritance of the City. Those nights were hideous with the din of battle and the days with the ceaseless struggle to get from place to place to keep essential work going. But, fortunately, the Committee had in its secretary, Preb. T. E. Wellard (whose death in 1942 was deeply deplored by all lovers of the City churches), a man of great knowledge, enthusiasm and energy.

With so much urgent work outstanding it was difficult to decide which claimed first attention. At that time there were no Fire Guard Orders and the protection of property was left to individual owners. Business and commercial premises (not evacuated) still had sufficient staff to make up fire guard rotas, but in the case of the City churches no such staff existed and it was often difficult to obtain suitable assistance. Even when Fire Guard Orders came into force, the situation for churches was hardly improved—rather the reverse, for those who had hitherto volunteered to defend the churches now found themselves called upon to carry out fire guard duties at their place of business. It was not until the Fire Guard Plan came into operation that churches were brought under a central controlling authority, and by then the need had passed.

The Defence of the Churches.

The problem of the defence of the churches was the subject of many discussions with the City A.R.P. authorities, and as a result of a conference with the Fire Prevention Officers joint arrangements which already existed to some extent between the Church authorities and neighbouring property owners were strengthened and improved. A systematic review of A.R.P. at each church was carried out and adequate fire fighting equipment installed where necessary. London was not likely to forget the failure of its main water supply on December 29, 1940, and in every church supplies of reserve water were placed in all vulnerable parts. Trapdoors were constructed in roofs and ladders provided to give access to these.

Special consideration was given to the towers, experience having shown that these were often the most vulnerable part of a church and that they acted as flues. I have been told that the terrible conflagration which did so much damage to the tower of St. Mary-le-Bow was believed to be due to a single opening in the tower overlooking the main roofs, and that had this been bricked up or made fireproof the tower would probably have escaped. To minimise risk of fire to six of the most important towers, openings leading to main roofs were sealed, and where possible the roofs of some of the other towers were covered with pre-cast concrete slabs to resist penetration by incendiary bombs.

By far the most formidable part of the Committee's work lay in removing or protecting *in situ* the fitments, furniture and monuments with which these churches are so abundantly endowed, and here indeed was a problem of priority. The treasures of plate, registers, documents and other valuable records were kept separate, and in most churches arrangements had already been made for placing them in strong rooms or sending them away where they were practically safe from harm. But the protection of large and sumptuous screens, reredoses, pulpits, organs and galleries, as well as famous and beautiful monuments, was quite another matter, involving most careful selection as well as most skilful handling.

Even at this late hour not everyone was convinced of the necessity of this work. Some City Church authorities were lukewarm; some thought that altars, pulpits and fonts should be left for their sacred purposes and that if they must go down before the attacks of the enemy then it were better so. There may be some force in this argument, but, on the other hand, there was the viewpoint that we are only trustees of the hallowed things that have come down to us from the past and that it is our duty to keep them from harm and pass them on to posterity. In the end this view prevailed and between January, 1941, and September, 1942, despite the difficulty of transport, more than thirty-one lorry loads of some of the finest woodwork in London were removed to the wilds of Somerset, where safe and well-ventilated storing-space was found with the help of Dr. Eeles. I can well recall the feelings of relief we experienced in those days when news came through that these precious loads had left the London area and were safely on their way.

A list of items to be dealt with was first drawn up and divided into four categories in order of value and historical importance. Detailed records were made of items to be dismantled and storing-space for some of these was found in those church towers which could without much difficulty be converted into strong-rooms. But by far the greater part of the fitments and furniture—large pieces in particular—had to be taken into the country.

In addition to furniture and fitments, bells and glass were also removed. Some of the pre-fire bells have, alas, perished, but three sets were taken down and sent to a remote part of England; two bells from St. Bartholomew-the-Less of the 15th century; five from St. Bartholomew-the-Great of about 1510, and six from St. Andrew Undershaft of the 16th and 17th centuries. The eight bells of St. Magnus the Martyr were lowered to floor level. The City is not rich in ancient or mediæval glass, but what it does possess was taken away, including the rose window of St. Katherine Cree and the west window of St. Andrew Undershaft, with smaller panels from other churches.

Preserving the Remains.

In preserving the remains of the burnt-out churches many problems were encountered which, owing to the shortage of timber and steel, required some ingenuity to solve. Arcades, the supporting columns of which were split and shattered by the heat, had either to be taken down or temporarily upheld until they could be permanently repaired. At St. Giles, Cripplegate, where, through the weakness of two columns at the east end adjacent to the burnt-out organ, the whole of the arcade on one side was in danger, brick centres had to be devised to neutralise the arch thrusts and at the same time allow of the eventual reconstruction of the faulty columns.

Weaknesses in the towers were as a rule temporarily strengthened with brickwork, as at Christ Church, Newgate, St. Lawrence Jewry and St. Swithin, London Stone, but there are also instances where work of a permanent kind was carried out, as at St. Mary-le-Bow and St. Michael, Paternoster Royal.

Another problem which claimed attention was the protection of the crypts and burial chambers which exist beneath so many of the churches. In some cases floors had already shown signs of subsidence even before the war, and now, under the violent impact of falling masonry and roof timbers, they collapsed and became mere craters into which rain water flooded, thus endangering the foundations of the remaining walls and constituting a menace to public health. In the worst cases, in order to keep out the water, temporary flooring had to be laid down consisting of pre-cast bison beams spanning the craters below and covered with concrete slabs. Examples of these temporary floors can be seen at St. Lawrence Jewry, St. Augustine-the-Less and St. Andrew-by-the Wardrobe.

Not the least important part of the work connected with the burnt-out churches was

the salvage of ancient and valuable fragments from the heaped-up debris; and here it may be mentioned that the ravages of war have been the means of revealing things which have perhaps remained hidden since the time of Wren and earlier, the most outstanding being the early Saxon doorway at All Hallows, Barking. It will be realised by all who are acquainted with work of this kind that the utmost care is necessary in order to avoid damage, and in this connection particular tribute is due to the City authorities and the Ministry of Works for their invaluable help.

Scope for improvisation and ingenuity was also to be found in safeguarding the badly damaged churches against deterioration and in some cases collapse. Those who recall the gracious beauty of St. Stephen Walbrook may deplore its present appearance, but none can fail to appreciate the skill and loving care bestowed on the temporary repairs by its present architect. Seriously damaged by fire in May, 1941, its frail temporary covering twice torn asunder by the blast of later bombs and twice replaced, this famous City church, chosen at random, has a war history like that of many another—a story of patient endeavour amidst incredible difficulties.

With the needs of housing growing daily greater as the war progressed, work on the churches came literally to a standstill, and at the present time [October, 1945] no more than twenty-five men may be employed on the repair and maintenance of all the City churches. Roofs and valuable plaster ceilings remain temporarily supported from the stagings erected for purposes of inspection, and at St. Mary Abchurch—mercifully preserved from fire but several times damaged by blast—the whole church is filled with scaffolding pending the delicate operation of repairing Sir James Thornhill's painted plaster dome, a task made more difficult owing to the damaged condition of the roof trusses from which the timber structure of the dome is suspended.

It is impossible here to mention all the various works carried out in connection with the preservation of the City churches during the course of the war—most of them temporary, but some of them permanent. It must suffice to say that, within the limits of labour and materials available and the stern obligations of war, everything humanly possible has been done to safeguard the churches and maintain them in a sound and where possible usable condition until the time comes when they can be dealt with fully. Thanks to the work done in removing or protecting *in situ* the best fitments and monuments, much has been saved that would otherwise have been lost. The burnt-out churches have received as great care and attention as have the merely damaged ones so as to ensure, as far as possible, that no deterioration takes place in them which might compromise their future.

The cost of what has been done has naturally been considerable; many thousands of pounds have been expended from Church funds on City churches alone. A certain proportion of this expenditure will ultimately be repaid under the provision of the War Damage Act, but there will be no repayment of the large sums expended in the precautionary work of removing or protecting objects of value. No case has arisen in the City where considerations of cost have been primarily responsible for failing to take action which seemed in itself desirable.

And what of the future? Of the 48 surviving churches in the City of London at the outbreak of war, 18 have escaped serious injury, 11 are more or less seriously injured, 17 have been burnt out and two churches have been totally destroyed. In their Interim Report, published in 1944, the Bishop of London's Commission for the City churches says that "Collectively these churches formed a national heritage. Most of them were of great architectural and historical interest, while many were of superb beauty. To demolish any church which is an acknowledged work of art and has survived destruction by enemy action, with the object of achieving what, for the time being, may seem to be a more perfect parochial organisation would, in our opinion, be an act of vandalism which would shake the conscience of the country if not the world. Accordingly, having given the most careful consideration to the architectural claims of all the churches which have survived, we recommend as a matter of principle:

"That no Wren church, not already destroyed, nor damaged beyond the possibility of satisfactory restoration, should be removed, except in the case of most urgent necessity, and after all the schemes for entire or partial preservation have been fully considered.

"Furthermore, in view of the scarcity and historical value of the churches which survived the great fire of 1666, that all those churches should be retained as far as possible."

From this we may hope that the future of all but the burnt-out churches is practically assured. As regards the latter, we must await the advice of the Commission, but as Surveyor to St. Paul's I should like to make a special plea for those constituting the St. Paul's group: namely, St. Bride, Fleet-street, Christ Church, Newgate-street, St. Vedast, Foster-lane, and St. Augustine-the-Less—all of which, by reason of their position and close proximity to the Cathedral, are vital to its environment, the improvement of which we confidently believe will be one of the good results to the City from the war.

The heart of London beats in its ancient churches and historic monuments—more strongly now than ever because of this latest desperate phase in their history.

"THE FUTURE OF THE CITY CHURCHES"

In the course of his paper, PROFESSOR RICHARDSON said:

After twelve of the City churches had been burnt on December 29, 1940, the authorities in charge of our national treasures quickly took notice of them. Demolition squads were in readiness to bring down everything considered dangerous. Fortunately, the City engineer, Mr. F. J. Forty, took it upon himself to offer help to the incumbents of the damaged churches. He also gave instructions to his demolition squads to safeguard the walls of all the churches, and to leave their debris untouched. In many cases the debris was later on carefully cleared by the City Engineer's staff with advice from the Ancient Monuments Branch of the Ministry of Works. It is only fair to say that Mr. Forty's timely intervention not only saved the remains of these venerable buildings; it inspired architects and incumbents to do the right thing. As a result walls and monuments as well as important architectural features were saved, and the way was prepared for the Bishop of London's Committee to make a survey of the buildings and to arrange for the work necessary to prevent deterioration of the fabric of the burnt-out churches.

The object of this organisation [the Friends of the City Churches] is not to be didactic, but to assist London to retain some of her treasures of art. It would be unwise to advocate exact reproductions of Sir Christopher Wren's spires, or faithful copies of the interiors of the churches. Our aim is frankly the repair of the structure in every case—that is to say, we advocate replacing roofs and windows. We feel that the furnishings can be left to a discerning posterity. We stand before you, therefore, as mentors and guides, proud of the trust which you have given us to safeguard buildings which are worthy of respect. One object is to see the churches made fit for people to use for divine worship, not restored as museum pieces, nor as picturesque features in the new plan for the City, but standing as veritable shrines and meeting-places. Our aims go even deeper than preserving the unity of the ancient parishes and wards. Our ultimate objective is to interest the Dominions in the scheme of reparation and to increase the hospitality for which the City has ever been famous. The bond which exists between England and the Dominions would attain wider symbolism if certain of the City churches could be associated with the Dominions in some way to be defined. As a nation our hospitality to our friends from abroad goes far back into the seventeenth century and even earlier; need I recall the Dutch church or the Huguenot chapels which were allowed to be built in London and other places? Then there is the case of St. Benet's, Paul's Wharf, which for years has been the Welsh church. Again I stress the need for places of worship near to our great centres of business. What a comfort it has been to our City workers to use their churches during the week, sometimes attending mid-day services, and at all times using them as places of sanctuary. I will say no more on this branch of the subject to-day, except to express the hope of the Friends that Ecclesiastical Authority will implement our tentative ideas, and will take up the question of relating the ancient parish churches of the City with the newer requirements of those who earn their daily bread within the square mile.

I must now linger for a moment over the influence of Sir Christopher Wren, who so thoroughly understood the temper of his age, and who placed posterity in his debt. He was a deeply religious man, who aimed at truth and beauty in buildings. He knew the value and the effect a church should have on the minds of men and women. He was an architect first and foremost, but he was also an idealist with the power to create an ideal for those who came after his time. In consequence his churches seem to have a special message for us to-day. They appear with the same significance they had when they were first built after the Great Fire of London. We may yet be privileged to see them once again as Samuel Pepys saw them, surrounded by scaffolding, but this time being only repaired. Without such an ideal, deprived of such forceful inspiration, it is conceivable that eighteenth-century architecture would not have attained to its lofty significance.

If we were inclined to follow careless advice, we should fail in our trust. In my humble opinion, it is a tribute to the good sense of the architectural profession that architects as a body would prefer to see these seventeen churches repaired rather than to engage in projects for utilising the sites for personal reputation. I trust that in the replanning of this great City the minds of those to whom the task will fall will be guided to achieve a just balance between history and modernity. The draft plan, already published, shows that such a thought is already theirs. They would err indeed if, in their attempt at grandeur, they were to forget that humility should precede wisdom and honour.

"STANDARDS FOR HOUSING" EXHIBITION

BY A SPECIAL CORRESPONDENT

STANDARDS, of course, are not a new idea. Nearly fifty years ago the British Standards Institution was founded (as the Engineering Standards Committee). But only during the last few years has the imperative importance of standards been generally recognised. It is now evident to everyone concerned that the solution of our housing problem is very largely dependent on the mass production of building components conforming to a standard established for each. A definite step forward to this end was taken when the Minister of Works set up the Standards Committee in 1942. That body has been actively at work, and the Committee has now made 260 recommendations for British Standards, excluding those in the School series. In 1944 the Committee issued a first progress report in the form of a booklet on "The Uses of Standards in Building," followed this year by a second progress report dealing further with the subject. In an Introduction to this second report, the Chairman of the Committee, Mr. Sydney Tatchell, C.B.E., F.R.I.B.A., takes as an example the ceramic lavatory basin to show to what extent the standardisation of a component should, in the opinion of the Committee, be taken. He says: "Its recommendations embrace the overall sizes, positions of the taps, waste and supports, so that complete interchangeability is possible, together with quality requirements for the materials and finishes used. It did not suggest that the precise shape of the bowl, the design of rim or of soap dishes should be standardised, but that they should be left to the ingenuity of the designer, since they do not affect other trades. For materials, performance standards are needed, together with tests by which these standards may be checked. . . ."

As visual evidence of what might be achieved by the adoption of standards, an exhibition of equipment for post-war houses was held in Birmingham during the autumn of 1944, organised by the Ministry of Works with the co-operation of the Ministry of Health and the Ministry of Fuel and Power. Now, as further demonstration, an exhibition of Standard Products for Housing has been opened at the Princes Galleries in Piccadilly (adjacent to the blitzed fabric of St. James's Church). It has been organised by the Ministry of Works, the Ministry of Health and the Department of Health for Scotland, with the co-operation of the Ministry of Fuel and Power, the Ministry of Supply and the Board of Trade. The exhibition is intended primarily for local authorities and those directly concerned with the provision or production of houses, but from July 1 it will be open to the general public. Being so essentially technical, it will not thrill the general public, but the display has been so devised and presented, with captions which anybody can understand, that the least technical-minded will learn what standards in building mean, and their great merit in house production.

A point of importance to note is that, though examples of components were displayed at the Birmingham exhibition, they were shown as prototypes, whereas all those included in the present exhibition are either actually in production or very shortly will be.

The Eight Sections.

The three galleries of the painters in water-colours and oils have been divided up with screen walls to form eight rooms for the display of standard components. It is a very comprehensive and representative collection, corresponding to nearly half of the 250 B.S.S. for housing. The first room is related to the structural fabric, embracing exhibits of walling, roofing and flooring. The second room shows wall linings, windows, doors and window glass. In the third room are baths, lavatory basins, sinks, w.c.s, cisterns, tanks and wall tiles. The fourth room is an inquiry bureau where information can be obtained about the sources of supply of the articles exhibited, where copies of British Standards can be consulted, and where copies of Government publications on housing can be bought. In the fifth and sixth rooms there is a very good display of the latest solid fuel appliances and gas and electric appliances for heating, cooking and hot-water supply. The seventh room has standard kitchen, living-room and bedroom fitments. And the eighth room has some diagrammatic sketches and photographs to show that standardisation does not mean deadly uniformity, but that considerable variety can be achieved by careful selection and appropriate use.

Examples of Standards.

Exhibitions often fail by showing too much and too confusedly. A cardinal mistake is to have long descriptions of the exhibits. In a book these may be read with interest. On an exhibition stand they can become a bore. The promoters of this exhibition have been well aware of this. What they have to say is put tersely. Moreover, the captions stress precisely what has been formulated for standards. Here are some examples. Of sand-lime bricks and concrete bricks there are four qualities, based on strength and use (B.S. 187 and B.S. 1180); of clay engineering bricks there are two qualities, based on crushing strength and moisture absorption (B.S. 1301); and of common building bricks there are two sizes specified, $8\frac{3}{4}$ in. by $4\frac{7}{16}$ in. by $2\frac{5}{8}$ in. and $2\frac{7}{8}$ in. (B.S. 657). For precast concrete flue blocks for gas fires and ventilation, the standard provides for two overall sizes with two sizes of flue-way, together with a wide range of fittings (B.S. 1289). For pitch mastic flooring there are two standards, B.S. 1093 and B.S. 1177, the latter incorporating lake asphalt. Two types of cast-iron baths have been standardised, one a rectangular bath in two sizes, 66 in. and 72 in.; the other a parallel tub 66 in. long; and a standard is now in preparation for rectangular pressed steel baths of the same dimensions as cast-iron.

Enforcement of Standards.

Though the well-informed are aware that it is not so, many people are under the impression that these standards have been formulated and promulgated as a sort of fiat from a Government Department. The fact is, of course, quite otherwise. Not only is the British Standards Institution a body representing official, research, professional, trade and manufacturing interests, but also at the front of every standard issued there is a list of those who have been convened to consider, discuss, amend and finally decide on the requirements for the particular material or article specified. These standards, so far as housing is concerned, resolve themselves into two main considerations—standards of dimension and standards of quality. It has been well said that mass-production methods cannot be applied unless both dimensional and qualitative standards are adopted. In years past the standards were recommendatory. "The Ministry of Health and the Department of Health for Scotland have consistently recommended to local authorities the use of materials and components complying with British Standards, these recommendations being based on the belief that where public money is involved it is desired to ensure adequate standards of quality and an equitable basis for the invitation of tenders for goods." But a definite change was made by the circulars (211/45 and 167/45) which were issued last year to local authorities in England and Scotland by the Ministry of Health and the Department of Health for Scotland. These made *obligatory* the adoption of certain British Standards for specified materials and components. And this is all to the good, for, as is said in the booklet of the present exhibition; "Standardisation permits the development of the most efficient plant and machines; it eliminates the expense of maintaining large and varied stocks; and it provides an assured market. To the consumer, standardisation guarantees a satisfactory level of quality at minimum cost; it simplifies planning and permits of ready replacement, and it provides a basis for the purchasing, inspecting, testing and grading of goods."

These are points well worth bearing in mind when visiting the exhibition. It is open free from 10 a.m. to 6 p.m. (10 a.m. to 1 p.m. on Saturdays) until June 29, for members and officials of local authorities, architects, civil engineers, builders and other interested persons on presentation of their professional or trade card. From July 1 to July 27 the exhibition will be open to members of the public, admission 1s. per head.

Opening Ceremony.

Opening the exhibition on Wednesday, June 12, ALDERMAN CHARLES KEY, Parliamentary Secretary to the M.O.H., said we now had the opportunity to put into practice new ideas about materials and fittings and the design of houses generally. We were determined to ensure that houses built to-day were not only better in size and arrangement, but in architectural treatment and construction, and that better materials and equipment were used for the ordinary man's home than had been the case in the past. The importance of standardisation was that it increased production capacity while ensuring a satisfactory level of quality, and did much to ensure the efficient use of machines, materials, plant and labour. Hand-in-hand with shortages of materials and labour went a tendency for prices to rise, and by means of standardisation it was hoped this would be checked.

"Æsthetic objection to standardisation," said Alderman Key, "is an awful bogy which still rears its head. We must once and for all dispose of the idea that standardisation means row upon row of precisely similar little houses, looking alike to the last brick, and that it means the elimination of all initiative and imagination in design. The standards now in use or being prepared are planned to produce the widest possible range of design and to remove monotonous uniformity."

Alderman Key stated that of 250 recommendations made by the Ministry of Works Standards Committee, 150 had been issued by the British Standards Institution. The exhibition, he said, was not designed as a series of attractive tableaus for the general public, but as a businesslike display for the information and guidance of those concerned with the building of houses.

FURTHER USES OF STANDARDS IN BUILDINGS

M.O.W. STANDARDS COMMITTEE'S SECOND PROGRESS REPORT

THE Standards Committee, appointed by the Ministry of Works in 1942, has issued its second progress report, "Further Uses of Standards in Buildings."*

The Committee, of which Mr. Sydney Tatchell, C.B.E., F.R.I.B.A., is Chairman, has now made 260 recommendations for British Standards, excluding those in the School series, in pursuance of its function to consider the use of standard fittings and components in buildings and to recommend action which should be taken to introduce the greatest possible measure of standardisation. Since the publication of the first report in 1944, the scope of the Committee has been widened by the addition of the School Furniture and Equipment Sub-Committee, set up in collaboration with the Ministry of Education. Besides a summary of the progress made with the recommendations contained in the First Report, the present report includes the recommendations made by the Committee during the period November, 1943, to December, 1945, at which date the Committee considered it should go into recess for a period.

All the recommendations desirable, it is considered, have been made and time must be allowed in which research can be carried out to provide data to continue the Committee's work and also to permit the British Standards Institution to complete the preparation of Standards already recommended. A further consideration was the desire of the Committee to see the results of operation of those Standards which had recently been prepared or revised before making recommendations for further revisions, many of which it realises are needed, but the exact basis for which cannot yet be assessed.

The Committee fully realises that standards will require constant review and amendment in order to take into account technical and manufacturing developments. It also appreciates that some British Standards issued recently are incomplete through lack of sufficient accurate information, but it was felt that it was better to have an incomplete standard, to which additional information could be added when such information is available and circumstances permit its inclusion. The staff of the Ministry of Works which has serviced the Committee will continue to investigate and collect data during the period that the Committee is in recess.

The Committee reports that, in general, manufacturers have welcomed proposals for standardisation and have co-operated wholeheartedly in the work.

The report contains several photographs of the displays of standard components, based on the Committee's recommendations, at the Ministry of Works Birmingham Exhibition in 1944. It is noteworthy that the issue of this second and comprehensive report coincides with the opening in London of a comprehensive exhibition of standard housing products at the Princes Galleries, which in a sense illustrates practically the point at which the Committee considers its labours may be halted for the time being. (This exhibition is reviewed on page 616.)

*Further Uses of Standards in Building: Second Progress Report of the Standards Committee appointed by the Ministry of Works. Published for the Ministry of Works by His Majesty's Stationery Office, price 9d. net (post free).

MR. I. ERNEST JONES, M.A.

MR. R. L. COPPOCK, C.B.E.

BUILDING PRODUCTION COUNCIL: The National Production Officers.

Modular Co-ordination.

One of the subjects discussed by the Committee in great detail since its first report has been Modular Co-ordination. In view of the present interest in this subject and of its obvious affinity to the general problem of standardisation a memorandum giving the conclusions reached by the Committee has been included in the Report.

The Committee, it is stated, has been working with objectives similar to those put forward in support of modular co-ordination. In countries where the yard is the standard measure it has been shown that there is a case for the 3-in. factor, and perhaps also for other small-size modules. Where the metric system prevails, however, a different conception of lineal intervals seems to be desirable. The Standards Committee considered it necessary that the present basic system of sizes existing in this country should be retained in principle if progress with standardisation is to be made within a reasonable time.

"The Committee," it is stated, "considers that complete modular co-ordination based on a single small module and applied to all building components is not a practicable proposition, nor does it seem to be desirable in the interests of economy. It is agreed that it is necessary in many types of construction to work on a modular basis, but the unit selected must vary and must be based on the needs of each method of construction. Where the system of construction does not call for a special dimension it is recommended that a 3-in. module be used, as it is more likely to fit the general dimensions of manufactured components.

"The Committee believes that agreed dimensions for components, as advocated throughout its work, provide the advantages of standardisation, while leaving the designer free to assemble the components with the greatest economy.

"To adopt the same modular basis for all purposes would not only dislocate production during the change-over period but would entail the immediate scrapping of a large proportion of existing moulds, patterns and machinery, which would place an unnecessary burden on industry without corresponding advantages; particularly would this be true of the immediate post-war period, when labour for these purposes is certain to be in short supply and when maximum production is needed."

The Committee is to be congratulated on the work it has done for standardisation, which is of first-rate importance to the efficiency of the designer as well as that of the building industry.

PRODUCTION COUNCIL FOR BUILDING

APPOINTMENT OF PRODUCTION OFFICERS

THE following statement has been issued jointly by the Ministry of Works and the National Joint Production Council for the Building Industry.

The Production Council for the Building Industry is to appoint 25 Regional Production Officers to assist in the drive for increased output.

In January of this year the Council was set up and, in view of the importance attached to its activities by both employers and operatives, it was composed of the full national executives of both Federations, with representatives from the National Federations of Plumbers and Roofing Contractors.

Regional Joint Production Committees have also been set up to deal with all matters affecting production within their regions, and to this end have been given a fairly free hand. They may, if considered necessary, set up local committees to assist them.

Production problems had been the subject of discussion between the Government and the industry, and the Minister of Works had, at an earlier stage, raised the question of the appointment of Production Officers. Following further consultation between the Ministry and the National Joint Production Council of the Industry it was decided that 25 Regional Production Officers should be appointed. These officers will be appointed and employed by the National Production Council.

Obviously this production organisation had to be staffed, and staffed by the right people. These officers will provide the link and contact between the building site and the Production Organisation, National and Regional, and will, it is hoped, be appointed by the beginning of July, 1946. As the advertisements show, only men of wide practical experience of the building industry and with extensive knowledge of its industrial agreements will be considered for appointment. They will be paid from £650 to £700 per annum, plus subsistence and travelling expenses and, when appointed by the Joint Production Council, they will be allocated to a Region where they will be provided with an office and form an integral part of the Joint Production Organisation, both National and Regional.

The Regional Production Officers will be directly controlled on behalf of the National Joint Production Council by two National Production Officers (Messrs. I. Ernest Jones and Richard Coppock), the

Joint Secretaries of the National Joint Production Council. Mr. J. A. Paton Walker is the Administrative Officer.

As the organisation is new to the industry it is proposed to give to the Regional Production Officers opportunity and scope for the exercise of initiative and not to define their exact duties too closely.

Production Officers will have access to all Regional officials of Government Departments concerned with housing and local authorities within their area. They will have right of access to all housing sites. They will be expected to keep in close touch with the employers' and operatives' organisations. They will carry out investigations for the Regional Joint Production Committees whose meetings they will attend and, as well as reporting fully on their activities, will be expected to make suggestions based on the general experience they have gained on sites.

They will also act on instructions received from, and report monthly to, the National Production Officers, and will attend conferences held by them from time to time.

As it is the chief concern of these officers to ensure that the rate of output is raised and production increased, they will be encouraged when visiting sites to make such suggestions for immediate improvement as they consider expedient and necessary. When difficulties incapable of resolution arise they will have power to report the problem to the Regional Joint Production Committee or to the National Production Officers for appropriate action. While it is not their responsibility to ensure that materials are in adequate supply, when production or output is unsatisfactory owing to a hold-up of some kind off the site, they will do what they can to help by contacting the appropriate regional official of the Ministry concerned and advising him of the position. They will also be expected to make comparisons between the work in progress on different sites and schemes, and their general aim will be to raise the standard of output of all to that of the most efficient.

The link at national level between the Production Organisation of the Industry and the Government is provided by the Building Industry Production Sub-Committee of the Building and Civil Engineering Joint Committee which has been set up by the Ministry of Works under the Chairmanship of the Parliamentary Secretary, Mr. Harold Wilson, M.P. The representatives of the industry on this Committee are all members of the Production Council, and the two National Production Officers are also members. A similar contact will be maintained at Regional level on Committees set up under the chairmanship of the Regional Director of the Ministry of Works.

Production Officers will not be concerned with any matters relating to wages and conditions, machinery for the negotiation and settlement of which already exists in the building industry.

THE NATIONAL PRODUCTION OFFICERS

Mr. I. Ernest Jones.

At the age of 52 Mr. Ernest Jones has just completed 26 years' service with the Building Employers' Federation and 14 years as Employers' Secretary of the National Joint Council for the Building Industry.

He had previously graduated at the Universities of Cambridge (M.A.) and London (B.Sc.) and had served in the infantry throughout the 1914-18 war, starting as a Rifleman in the London Regiment and (after more than three years' continuous active service overseas) finishing as Captain and Adjutant in the Royal Welch Fusiliers.

He had an early background in the building industry. His father, who was associated with some prominent sanitary engineering firms, was a pioneer in organising Polytechnic training in plumbing and later became a Local Government Officer in East London—where, incidentally, at the age of 83, he has continued to reside in spite of much bomb damage.

It was in 1920 that Mr. Ernest Jones undertook the task of organising the newly formed Eastern Regional Federation and became its first Director and Secretary. In 1929 he was transferred to the National Headquarters, being succeeded in the Eastern Counties by Mr. G. H. A. Hughes, the present Director of the London Master Builders' Association. In 1932 he became National Joint Secretary of the Federation and also Employers' Secretary of the National Joint Council. During the war years he was responsible for administering the Uniformity Agreement of the building and civil engineering industries and was appointed the chief industrial official of the N.F.B.T.E. and a member of the Committee of the British Employers' Confederation.

Among his many activities may be mentioned the part he played in organising the International Congress of 1930 (for which he prepared a notable Report on Rationalisation) and in devising and carrying through successfully a long series of important adjustments of building industrial practice, such as the present National Joint Council Agreement, the Holidays with Pay Scheme, the Apprenticeship Scheme, and the Guaranteed Wage Scheme.

Throughout the recent war he gave assistance to numerous committees of the Ministry of Labour and the Ministry of Works, and, incidentally, he played a key part in the organisation of the three special efforts of the industry—at the time of Dunkirk, on the advent of the American forces, and in preparation for D-Day. He has held decided views concerning the unfortunate, though perhaps unavoidable, effects on the industry of the conditions in which London bomb-damage repairs were being carried out and has taken a strong line in the endeavour to remove the underlying causes of poor output. Among the chief of these causes he counts the working of excessive overtime and the indiscipline resulting from the Essential Work Order, under which unwilling men have been tied to employers who did not want them. He believes that a better spirit is already developing in the industry and is confident that, if intelligent steps are taken to ensure a balanced labour force and to smooth out the present difficulties about materials and controls, the employers and operatives together will be able to step-up production greatly during the coming months.

Mr. R. Coppock.

Mr. R. Coppock, well known in the building industry, is a national figure. As Organising Secretary of the National Federation of Building Trades Operatives he has played a considerable part in the mobilisation of building labour for the war effort, and has a deserved reputation in building circles as a negotiator who takes the long view. He was awarded the C.B.E. for his war services, was the youngest J.P. ever to be appointed by the County Palatinate, and is an Hon. A.R.I.B.A. He is a Past-President of Building Industries' National Council and a Past-Chairman of the L.C.C.

CORRESPONDENCE

(*Continued from page 603.*)

Building in the Countryside.

To the Editor of *The Builder*.

Sir,—It is now four years since the Scott Committee recommended (Para. 162) the setting up of panels of architects and others for the compulsory supervision of rural buildings. So far, nothing has been done. In the countryside around this beautiful city, as superbly planned as the Georgian centre itself, new buildings are now being erected without a vestige of architectural design, and completely out of harmony with their surroundings.

How much longer have architects to suffer this monstrous despoilment of country and town before the Government takes positive action? The only solution would be the creation of a National Board of Æsthetics composed of qualified planners, as has functioned in Holland for many years. Or are the British people so hopelessly uncultured that they do not care?

W. H. Gill.

Bath.

Efficiency in Building.

To the Editor of *The Builder*.

Sir,—I have followed with close interest the comments and viewpoints of your readers in regard to the efficiency or otherwise of the building industry. I shall probably be accused of stepping in "where angels fear to tread," etc., but I think I can claim fair comment considering my qualifications in engineering. I am a "Time and Motion Study" engineer at one of our leading industrial concerns and, as you know, the uses of such as myself are only just beginning to be understood in Great Britain.

Briefly, my opinion of building methods and the use made of available labour in comparison with engineering does not place the former in a favourable light, in fact there is no comparison. While we have been going forward in great strides, the builders' traditions and common practices remain virtually stationary, no attempt being made to make use of such aids to efficiency as "Progress, Planning and Time Study," in their proper place. Why, the whole industry cannot even answer a simple question like, "How many bricks an hour should be laid under given circumstances!"

Please don't think this an idle criticism. I am at the moment in process of building my own bungalow, and appreciate at least some of the difficulties builders labour under. If you think fit to publish this I am prepared to enlarge to any extent and exchange viewpoints, either through your periodical or privately.

We have very determined views on improvements in our industry and are of the solid opinion that no job is so good that it cannot be made even better. The available field of improvement in building is so obvious, even to an outsider like myself, that I stand amazed that nobody seems to care to try to put things right. I wait now for the inevitable storm.

G. W. Bryant,
M.I.Ec.E., A.I.I.A.

Twickenham, Middlesex.

B.S. Specifications.

The following B.S. Specifications are issued from 28, Victoria-street, S.W.1: Screw threads for copper tubes (B.S. No. 61, Pt. 2); Ferrous traps for baths (B.S. No. 1291, 1946). Price 2s. each, post free.

HEATING DOMESTIC DWELLINGS

SOME SUGGESTED IMPROVEMENTS

Some methods by which the heating of domestic dwellings might be improved were suggested by Mr. A. C. Fallot, M.B.E., B.Sc., Senior Engineer in the Chief Scientific Adviser's Division of the Ministry of Works, when he addressed the Health Congress of the Royal Sanitary Institute at Blackpool.

The title of the paper was "Heating and the Community," and from it we take the following extracts :—

A realisation of the importance of the domestic heating problem prompted the appointment, during the war, of committees to consider various aspects of the matter, and two valuable reports have been issued in the Ministry of Works "Post-War Building Studies" series. One (No. 10, H.M.S.O., 1944, 9d.) deals with "Solid Fuel Installations," and the other (No. 19, H.M.S.O., 1945, 2s. 6d.) with the "Heating and Ventilation of Dwellings" (The Egerton Report).

The amount of solid fuel burned in each dwelling averages about three-and-a-quarter tons per annum, of which about three tons are in the form of bituminous coal. Of this, 2.7 per cent., or about 180 lb., is given off as smoke, while about 160 lb. of SO_2 is produced, sufficient to form over two cwt. of sulphuric acid. The cumulative effect of these emissions is very great, and it is estimated that half the total atmospheric pollution in this country (which causes damage to the extent of fifty million pounds per annum) is due to domestic fires.

Other effects of our customary methods of heating and hot water usage can be briefly summarised :—

(a) Insufficient heating results in a serious reduction in the living space of a house, probably making the average British home, though generous in area, "the smallest in the world."

(b) A great deal of labour is caused by the use of solid fuel, including the resulting dust and ash and the necessity for chimney sweeping.

(c) It is rarely possible to store the winter's supply of solid fuel, thus involving frequent deliveries.

(d) Heating installations are rarely designed with regard to the house as a whole, and water pipes frequently become frozen in cold weather.

(e) Dampness and condensation in unheated parts of the house are probably inimical to health and to the preservation of fabrics, etc.

(f) Inadequate supplies of hot water result in low standards of hygiene, both as regards house and person.

Methods of Improvement.

In considering the steps necessary to effect improvements in domestic heating, it is clear that two conditions must be observed : (a) the cost to the householder must not be substantially greater than it would otherwise be, and (b) the overall consumption of coal must not be increased.

As regards (a) a Ministry of Labour inquiry in 1937-38, covering several thousand industrial households, showed that the average cost of heating services was 6s. 5d. per week. Taking into account the war-time increases in the cost of fuel and light, the equivalent present-day cost would be about 9s. 8d. It is therefore necessary to ensure that heat is more efficiently used in houses, and this can be achieved by better planning and construction of houses and by the use of more efficient appliances.

In the planning of the house, the heat service arrangements should be regarded as a cardinal feature.

The speaker went on to describe the Ministry of Works Heat Service Unit (illustrated in *The Builder*, March 15), and continued :—

Constructional details of houses should be improved, and the Egerton Report recommends the following maximum values of thermal transmittance : External walls of living-room—0.20 B.Th.U./sq. ft./hr./deg. F.; ground floor—0.15 B.Th.U./sq. ft./hr./deg.F.; roof and top-floor ceiling—0.30 B.Th.U./sq. ft./hr./deg. F.

Air infiltration should be reduced by better-fitting doors and window frames. Each foot of crevice of a medium wooden sash window, with a fifteen m.p.h. wind, accounts for 110 cubic feet of air per hour; a great deal of heat is absorbed in warming unnecessarily large volumes of cold air.

As regards appliances, greatly improved models are now coming on to the market. The efficiency of the traditional form of open fire, with its associated heavy brickwork, is very low—probably less than 20 per cent. in everyday service. The report on solid fuel installations, previously mentioned, lays down that the minimum thermal efficiency of an open fire shall be 35 per cent., and of a stove 65 per cent., at average rated output. Stoves have a great deal in their favour. Properly designed, installed and managed, they are very economical, and have the great advantage of all-night burning. The increased capital cost of the new appliances is amply justified by the results obtained.

The subject of district heating has for several years been under close consideration by a special sub-committee, who have investigated the possibilities of combining electrical generation with district heating. Very many complex factors, technical, economic and legislative, are involved; but it is believed that the report of the sub-committee, when issued, will provide a highly detailed analysis of the problem. It is not possible to anticipate the findings of the sub-committee, but some general considerations may be of interest.

The overall efficiency of domestic coal utilisation is about 20 per cent., whereas very large steam boilers, such as are used in modern generating stations, operate at about 80 or 85 per cent. efficiency, and, allowing for mains losses, could supply heat to buildings at an efficiency of about 70 per cent. (Incidentally, such large-scale boiler operation enables flue-gas treatment to be applied, with a total elimination of smoke and dust, and of practically all sulphur.)

If the 1938 figure of thirty-seven million tons of coal used domestically is taken as the basis, and the heat utilisation per household is assumed to be increased from 220 to 385 therms per annum, a simple calculation shows that, with district heating from thermal-electric stations, the comparable fuel consumption would be about eighteen-and-a-half million tons. This is, of course, an over-simplification, since the efficiency of electricity generation, *per se*, would be affected, but the figures indicate the order of the maximum fuel savings obtainable.

It is unlikely that the whole country could be converted to full thermal-electric practice for many years, and a more probable line of development would be the construction of "straight" district heating stations, uncombined with electricity generation, and serving new or reconstructed urban areas and housing estates. The difficulties confronting district heating are formidable, particularly when applied to the uncontrolled and untidy towns and cities which are our heritage from the materialistic and purblind nineteenth century.

OBITUARY

F. Herbert Mansford, F.R.I.B.A.

H. V. M. R. writes : One has heard with mingled relief and sorrow of the death on June 13 of F. H. Mansford—relief, because he had lain enfeebled and in distress of mind for several weeks, and sorrow, because one has lost an old friend of great learning and great kindness. Architecturally, one felt that he never had the opportunities of which he could have made great use. His chief work was Conway Hall, the headquarters of the South Place Ethical Society, in the north-east corner of Red Lion-square : an ingenious plan on a most awkward site, and a façade to fit, which he admitted was influenced by the Central School of Arts and Crafts, Southampton-row ; here Mansford was once a studio instructor in the architectural room. At Ruislip he designed several houses, including his own, No. 15, and its twin, in that lovely winding road, Kingsend ; here Mr. Edwin Gunn, A.R.I.B.A., also lived, and collaborated with him before removing to Somerset.

Mansford's interests were always historical ; brought up in the City of London, for which he had a great affection, he took many parties round the City churches. He lectured often on mediæval architecture to the Ecclesiological (formerly St. Paul's Ecclesiological) Society and other bodies ; though his voice and his modesty affected his technique as a speaker, great research was always evidenced. His article on Ruislip in *The Builder* (Sept. 18. 1925) was a model, and his recent article on the City plan (October 20, 1944) helped to employ him in the sad times after his wife's death early in the war. An acute and over-scrupulous conscientiousness, influenced by the Darwinian reaction of the late nineteenth century, made him an agnostic, but as an ethicist he lived up to a positive ideal, and many will be the poorer without him.

"OFF THE RATION" MATERIALS FOR BUILDERS?

NATIONAL FEDERATION PRESIDENT'S HOPE

BUILDERS are pressing the Government to allow merchants to release a proportion of the materials recently brought under the Ministry of Works Materials Priority Scheme "off the ration." This was announced by Mr. W. H. Forsdike, President of the National Federation of Building Trades Employers, at the half-yearly meeting of the Northern Counties Federation in Darlington.

"The working of the building materials priority scheme," said Mr. Forsdike, "is still unsatisfactory, and the representatives of the National Federation who, on behalf of the building trades employers of the country, attended the Minister's recent conference on the subject made that very clear. As a result of our strong pressure I have every hope that the amendment we suggested will be accepted by the Government, and that merchants will very shortly be allowed to sell a proportion of the materials off the ration. This would be a great help, particularly to the small builder."

Builders were still surrounded by restrictions and forms, added Mr. Forsdike. Indeed, there was so much planning that there was considerable danger that coals instead of houses would be brought to Newcastle. Building could not possibly go full speed ahead until all the lines were cleared.

Protecting the Housebuilder.

"Through the National Federation," proceeded the speaker, "we represent building trades employers of all kinds and sizes, and we do our utmost to safeguard their varying interests. In the special circumstances of recent months we have given particular attention to the interests of housebuilders. The recent decision of the National Council to set up a Housebuilders' Committee shows that we mean in the future to be even more active than in the past. We shall continue to press the Government, and to press them strongly, until private builders are encouraged instead of discouraged. Once materials are in good supply there can be no valid reason for preventing the private builder from making the full contribution of which he has shown himself to be capable, and so delaying the building of the sadly wanted new homes. In the meantime we must take full advantage of the schemes for building houses for sale to local authorities and for the rebuilding of houses destroyed by bombing.

"Our chief worry to-day is the desperate shortage of many building materials and components. Until this problem is solved the builder cannot possibly come into his own, and I am afraid that in the meantime we shall have to continue to be more clerks than builders. Whilst there is scarcity, controls are inevitable, but they must be carefully drawn up and wisely administered. We have recently been successful in getting Mr. George Tomlinson to make several adjustments in the Materials Priority Scheme. Because of our representations he quickly agreed to provide for the release, without formality, of materials and fittings required for urgent and essential repairs. And again, because of our representations he did what he should have done before the scheme became operative, called a conference of all the interests concerned, at which the National Federation represented the builders. At that conference we made it clear that we still thought the scheme unsatisfactory. We stressed in particular the plight of the small builder and the danger of unemployment, and pressed strongly for the scheme to be amended so that a proportion of the materials could be disposed of by the builders' merchants 'off the ration.'

"As for 'clerking,' I am glad to say that at their request we are getting together with the Ministry of Works in order to see to what extent the many forms can be reduced, and those that are left simplified.

Increasing Output.

"Materials are controlled because they are short. But labour cannot be said to be so short as to justify the anomaly of the Essential Work Order, instead of being progressively withdrawn, being extended to certain permanent housing sites. We have resisted this in every possible way, and shall shortly be making further representations to Mr. George Isaacs. From personal talks which I have had with Ministers, I am hopeful that before very long we shall get the results we want. Last week I heard Mr. Tomlinson say that he wanted to see the Essential Work Order removed at the earliest possible moment. We think the moment for its removal arrived long ago. So long as the Essential Work Order continues we shall not get proper output.

"Despite this handicap, we and our operative friends are co-operating with the Government in an attempt to solve this vital problem. I am glad to say that your Regional Production Committee, whose work has been held up by lack of staff, will soon be able to go full steam ahead, for we are now advertising for Regional Production Officers for every Region. They will be appointed and controlled by the National Production Council, but the considerable help which they will give to Regional Councils should enable those bodies to become really effective."

HOUSING AND SLUM CLEARANCE

A NATIONAL STANDARD OF FITNESS

SPEAKING on the subject of housing and slum clearance at the Health Congress of the Royal Sanitary Institute at Blackpool, MR. NORMAN BASTABLE, Chief Sanitary Inspector, Barking, referred to a national standard of fitness of dwellings, and suggested a number of matters which should be given full consideration in the laying down of that standard.

The speaker said that, before the war, slum clearance in many towns was lethargic and the standard of maintenance repairs low. Both the officers and the local authorities failed to interpret their powers upon a sufficiently broad and informed basis. In some cases there was inefficiency and inertia. For such officers and authorities the introduction of a legal and national standard of fitness, uniform for all authorities, and about which there could be no misunderstanding, would provide the yardstick with which to make their survey and supply the factual data for action. Public opinion would provide the prod.

"To anyone who has had intimate contact with housing problems, it is crystal clear that (i) for success in building operations there must be planned a continuous building programme related to the supply of labour and materials, and an even flow of schemes must be ensured; (ii) owners of houses built to let prior to 1914 can no longer bear unaided the costs of improvement and maintenance; (iii) existing housing legislation does not provide local authorities with sufficient powers to secure the improved standard of accommodation demanded by public opinion, owing to the limiting phrases 'reasonable cost' and 'general standard of fitness in the area.'"

The speaker went on to enumerate many of the matters for consideration in a suggested national standard of fitness for dwelling houses as follows :—

Suggested Standard of Fitness.

Siting.—Its siting should not exceed building density of 20 per acre for pre-1919 houses. There should be an absence of nuisances from industrial or commercial sources and from surface flooding.

Bye-laws.—It should comply with bye-law conditions in respect of (a) width of street; (b) open space at front; (c) open space at rear; (d) site concrete; (e) under-floor ventilation; (f) damp-proof course; (g) window area (adequate in each room); (h) secondary ventilation (each room); (i) staircase (lighted, and handrail provided); (j) food store (ventilated); (k) height of rooms (not less than 8 ft.).

Design.—It should be of good design, well planned internally, with (a) dual access (i) from street to enclosed forecourt; (ii) access to rear yard; (b) staircase opening from hall or passage; (c) all bedrooms entered separately; (d) fuel storage outside; (e) absence of daylight obstruction; (f) floors above ground level; (g) horizontal separation of each tenement dwelling.

Facilities.—There should be (a) water supply (main supply and located indoors)—separate for each family; (b) water-closet (located indoors)—separate for each family; (c) installed bath with services; (d) sink (with tap over); (e) washing copper; (f) range (coal, gas, electric, oil); (g) electric lighting; (h) installed heater or fireplace in each principal room; (i) constant supply of hot water to the sink

and bath; (j) adequately-paved area; (k) utility room for basic storage needs.

Maintenance. — Structure — absence of serious dampness or decay. Plaster—hard and impervious. Floors—firm and sound. Plumbing—free from leaks or obstructions. Drainage—in a sanitary condition. Fitments—of modern design and in good condition. Infestation—there should be an absence of rats or other vermin.

Occupancy.—There should not be any (a) doubling of families; (b) room crowding; (c) mixing of the sexes over ten years of age in sleeping rooms.

Sanitary Conditions.—(a) Basements should not be used for habitation; (b) yards should be free from refuse; (c) water-closet in working order; (d) dustbin of B.S.I. specification.

IN PARLIAMENT

Bricks and Brick Production.

Before the House rose for Whitsun, MR. NAYLOR asked the Minister of Works whether he was aware that a substantial quantity of bricks was available in Belgium; and whether he proposed to take any action.

MR. TOMLINSON said he was. A purchasing mission, acting on behalf of His Majesty's Government, had visited Belgium and contracts had already been placed for the supply of a quantity of bricks. These bricks would be purchased and distributed by the Government, who had appointed an agent to carry out the whole transaction. They would be used for housing and other priority works and sold at the controlled ex-works prices of bricks manufactured in the areas of the ports of entry, plus such haulage and other charges as were permitted in the Bricks (Range of Prices) Orders. The cost in the first place would be met from the Building Materials and Housing Fund and the receipts from the sales would be audited to that fund. A Supplementary Estimate would be laid before the House in due course to reimburse the fund in respect of the difference between the total cost and the receipts.

MR. NAYLOR asked the Minister of Works whether he was aware of the shortage of bricks in Scotland; and what action he proposed to take.

MR. TOMLINSON said he had already made arrangements for bulk deliveries over a period of some 15-20 million bricks from the Fletton area to Scotland. They would be delivered by special train loads to certain points in Scotland and would there be sold at the average ex-works price of Scottish-produced bricks. The additional costs would be met in the first instance from the Building Materials and Housing Fund, but a Supplementary Estimate to reimburse the fund would be laid before the House in due course.

MR. D. J. WILLIAMS asked the Minister of Works how many brickworks were still completely idle in Wales; and what steps he was taking to get these into production.

MR. TOMLINSON said that 37 brickworks in Wales were still inactive. Of these, 17 would be in production in the course of the next two or three months, and storage would be cleared from nine further works. Efforts were being made to overcome the various difficulties in the remaining cases.

Local Authorities' Houses.

MR. LAW asked the Minister of Health how many plans from local authorities for new council housing were approved by his department during the first three months of 1946; and how many of these contained any proportion of one-bedroom dwellings.

MR. BEVAN said that the number of permanent houses and flats in respect of which plans had been approved during the first three months of this year was 103,566; of this number, 421 were for one-bedroom type houses and 963 were for one-bedroom type flats.

NATURAL STONE INDUSTRY

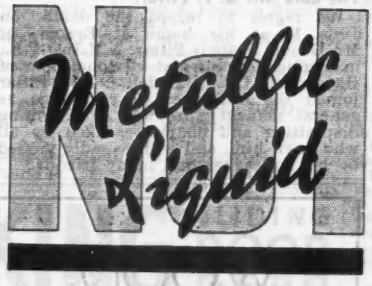
In Circular 117/46, directing local authorities and others, the Minister of Health states that he has been in consultation with the Minister of Works on the subject of the steps which can be taken to assist the natural stone industry and to provide employment for stone masons now returning from the Forces.

Natural stone is required for a variety of purposes, and a good deal of work is waiting to be done, *e.g.*, in the repair of bomb-damaged stone buildings. Work which makes demands upon considerable numbers of building trade workers, other than stone masons, will usually have to be postponed for the present. In some cases, however, work can be carried out by stone masons which will involve a relatively small demand for other types of building labour and for materials in short supply. Where, in such cases, the work to be done relates to services for which his Department is responsible, the Minister of Health will be prepared to consider sympathetically applications for his authority, or for his support in civil licensing cases to applications made to the Ministry of Works, to enable the work to proceed.

Where, owing to the existing serious shortage of building and civil engineering labour and of materials, it is not possible for a particular project to be put in hand now, it is suggested that an order for the natural stone required might be placed in advance.

Solicitors' Charges in Conveyancing.

The Law Society publishes from 113, Chancery-lane, W.C.2, a short guide to solicitors' charges in conveyancing matters.



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NEWS ITEMS

Industrial Teams' Reports from Germany.

Further reports submitted by teams of industrial experts, who have visited Germany under the auspices of the Combined Intelligence Objectives Sub-Committee, the British Intelligence Objectives Sub-Committee and the Field Information Agency, Technical, for the collection of scientific and technical intelligence from German industry, are now available from H.M. Stationery Office.

Colour and Lighting in Factories.

"Colour Schemes for the Interior Decoration of Factories and Offices" is the title of an interesting and informative booklet recently prepared by the British Colour Council, 28, Sackville-street, London, W.1. The booklet, which is illustrated with suggested colour schemes for factory and office decoration, discusses the health aspect of correct interior decoration, the basic principles of colour, the classification of colour, and deals in detail with the suggested schemes for the decoration of interiors of industrial and commercial buildings.

B.I.N.C. Congress Record.

The Building Industries National Council has published a comprehensive record of the proceedings at the Second Building Congress held earlier this year and fully reported in *The Builder*. The Chairman of the Council's Public Relations Committee (Mr. B. S. Townroe) has contributed an introductory statement entitled "A Policy for the Building Industry," which sets forth a number of the more important issues raised at the Congress. The Report is obtainable from the headquarters of the Council, 11, Weymouth-street, W.1, price 4s. 6d.

Codes of Practice: Electric Lifts.

The Codes of Practice Committee have issued for comment Code 3.451, "Electric lifts for passengers, goods and service." The Code, which has been prepared by a Committee convened by the Institution of Mechanical Engineers, deals with the provisions of electric lifts in various types of building. It gives general guidance on the selection of equipment and the recommended location of lifts and machine rooms in buildings. Particular attention is given to the co-operation necessary between the different trades concerned in the installation. Structural requirements are also dealt with.

Copies of this Code may be obtained from the British Standards Institution, 28, Victoria-street, London, S.W.1. The reference number of the document is CP(B)552.

BUILDING RESTRICTIONS (WAR-TIME CONTRAVENTIONS) ACT, 1946

THIS Act came into force on March 26, 1946. The necessity for it arose because during the war and for the war local authorities had in effect contravened their own bye-laws, regulations, etc., in permitting buildings to be erected which do not comply with the law affecting building.

The Act deals with such cases. It provides amongst other things that any time limit for enforcing the law shall only begin to run from the date of commencement of the Act. Also that the building owner may, at any time in the next five years, apply to the local authority concerned for their permission to treat the breach of regulations as having been waived, and an appeal lies from their decision to the Minister of Health.

The Act also provides a time limit for enforcing breaches of building laws; the building is to be deemed to comply with any building laws, or planning control applicable to it, when five years have elapsed.

TRADE NEWS

The A.B.C. Air Guide.

The A.B.C. Air Guide is now published monthly by Messrs. Thomas Skinner and Co. (Publishers), Ltd., of 330, Gresham House, E.C.2, price 2s. 9d. post free.

Change of Name.

Uni-Seco Structures, Ltd., have now changed their name to "Uni-Seco, Ltd." The constitution of the company, the registered address (25, Upper Brook-street, W.1) and all other relevant matters continue unchanged.

Building Industry and Exports.

Various sections of the building industry are playing a part in the nation's great export drive. We learn that a patented invention for "Bison" Precast Floors is in high demand in overseas markets and is already in operation in several countries abroad.

Substitutes for Plywood.

The Flush Door Manufacturers' Association would like to receive particulars of materials which can be offered by any branch of British industry as a substitute for plywood. Interested parties should contact the Secretary at Stapleford-road, Trowell, Nottingham.

An Open-fire Grate.

The Gas Light and Coke Company announce the Fulham grate, which burns coke or any solid fuel. A feature of the product is a movable lever device which controls the heating of the room, and, apart from the attractive appearance of the open fire, the grate is finished in vitreous enamel and is available in several shades. Three sizes of the Fulham open fire are made, and can be built in to fit most fireplaces.

The Uses of Lead.

The minimum uses of lead sheet and pipe in house building are dealt with in a pamphlet recently issued by the Lead Industries Development Council. The pamphlet is designed to be read in conjunction with the Ministry of Works "Economy Memorandum—Lead," issued by the Ministry of Health as a supplement to circular 76/46. Copies of the pamphlet may be obtained from the Council's headquarters, Eagle House, Jermyn-street, S.W.1.

Steel Engineers' Dividends.

Messrs. Banister, Walton and Co., Ltd., constructional steel engineers, Trafford Park, Manchester, have declared a final dividend of 20 per cent. actual plus 5 per cent. bonus (less tax) on the ordinary shares, making, with the interim dividend of 5 per cent., a total of 25 per cent. plus 5 per cent. bonus (less tax) for the year ended March 31, 1946.

Dimensions of Reinforced Concrete.

A year ago the Reinforced Concrete Association issued a memorandum on "The Standardisation of Reinforced Concrete Structural Members." Now the Association has issued a new pamphlet —"Recommended Dimensions of Reinforced Concrete Structural Members"— which is largely a repetition of the memorandum, but in which some modifications have been introduced. In the preamble it is emphasised that it is by no means essential that a special form should be available for every type and size of member. The dimensions have been carefully chosen with a view to the interchangeability of forms, and all the members listed could be constructed with very few form-shapes. Little opportunity has so far occurred for testing the proposals in actual practice, and it has therefore been decided that the testing period shall be extended at least until the end of 1947. In the meantime, architects, engineers, contractors, and others are invited to communicate the results of their experience to the Association, from whose offices at 94-98, Petty France, London, S.W.1, copies of the pamphlet may be obtained, price 6d.

Hiduminium Alloys.

Branch offices have been opened at Manchester and Glasgow, jointly by High Duty Alloys, Ltd., Reynolds Tube Co., Ltd., and Reynolds Rolling Mills, Ltd., each in charge of qualified representatives. Technical advice on the correct application of aluminium alloys generally will, we understand, be readily given to intending users resident in these areas. The addresses of these offices are: 4, St. Ann's-square, Manchester, 2 (telephone, Blackfriars 4881) and 69, West Regent-street, Glasgow, C.2.

THE SCOTTISH BUILDER

NEW BUILDINGS

Baillieston.—Factory proposed at Langton-rd., for which the architect is George B. Montgomerie, 95, Bath-st., Glasgow.

Falkirk.—Dean of Guild Court approved plans for alteration and enlargement of bottling hall for James Aitken & Co. (Falkirk), Ltd., The Brewery, Falkirk, at £9,000.

Glasgow.—Building proposed at Mill Tube Works at Easterhouse-rd., for which the architects are James Davidson & Son, 6, Academy-st., Coatbridge.—Additions and alterations proposed at 261-263, Hope-st., for which the architect is Magnus Duncan, 243, Eglinton-st., Glasgow.—Additions and alterations proposed for Glasgow Rubber and Asbestos Works, for which the architect is J. Austin Laird, 55, West Regent-st., Glasgow.

Glasgow.—Plans prepared for reconstruction scheme and additions at 548-560, Duke and Glendale-sts., for which the architects are Burnet & Boston, 180, Hope-st., Glasgow.—Corporation to erect flatted homes at Skene-rd., for which the architect is Ronald Bradbury, 20, Trongate, Glasgow.—Scottish Wholesale Co-operative Society, Ltd., architects to carry out additions and alterations at Ruchill-st. and also erect storage building at Shieldhall.

Greenock.—Extensions, etc., of W. G. McAulays, Ltd., Glasgow and Greenock, bakery to be carried out, for which the architect is Frank Petrie, Library-bldgs., Greenock.

The Late Mr. G. F. Pittar.

We regret to record the death, on June 16 at his home at Epsom, of Mr. George Francis Pittar, A.M.Inst.C.E., managing director and vice-chairman of Haywards, Ltd., London. Mr. Pittar joined the firm over 40 years ago as general manager; he was of charming disposition and character, liked by all who knew him, and will be sadly missed by his colleagues and many friends.

WOOD BLOCK FLOORING
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FUTURE CONSTRUCTION

CONTRACTS OPEN

For some contracts still open, but not included in this list, see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING

JUNE 25.

†**Stratford-on-Avon T.C.**—50 Unity houses at Swincote estate; 50 Orlit houses at Clopton estate; 62 traditional houses at Clopton estate. P. C. Smart, A.M.I.C.E., B.E. and S. Dep. £2 2s.

JUNE 27.

†***Hartley Wintney R.D.C.**—7 houses at Phœnix Green and 6 houses at Rotherwick. C.

JUNE 29.

†***Bromley T.C.**—60 Orlit houses at Princess Plain and Lower Gravel-rd. B.E. Dep. £2 2s.

Canvey Island U.D.C.—16 houses at Chambers Field, Long-rd. Cockrill & Fowles, 35, Weston-chmbrs., Southend-on-Sea. Dep. £3 3s.

†**Lanes. C.C.**—Completion of Modern school at Gt. Sankey and Penketh, nr. Warrington. Quiggin and Gee, Architects, Harley-bldgs., 11, Old Hall-st., Liverpool 3. Dep. £2. Tenders by July 13.

JUNE 30.

†**Hythe T.C.**—10 houses at Horn-st. T.C.

JULY 1.

Ashby-de-la-Zouch R.D.C.—8 Swedish houses at Swannington. Leonard Swanwick, M.Inst.R.A., 44, London-rd., Coalville. Dep. £2 2s.

Blackwell R.D.C.—28 houses at Sporton-la., South Normanton. Architect and Housing Superintendent, "Dale Close," 100, Chesterfield-rd. South, Mansfield. Dep. £2 2s.

Brighton E.C.—(1) Temporary classrooms at Moulsecoomb Junior School; (2) youth hut at Woodingdean; (3) dining hut at St. Mary Magdalen's School; (4) adaptations at Circus-st. School for Art School, Technical College and Cleansing Centre; (5) adaptations at Preston-rd. School for Evening Continuation School. B.E. and S. Dep. £3 3s.

†***Esher U.D.C.**—8 houses at Windmill-la., Long Ditton. C. Dep. £2 2s.

***Faringdon R.D.C.**—(1) 80 houses at 5 sites (5 contracts); (b) roads and sewers, etc., at 4 sites (4 contracts). E. and S. Dep. £2 2s.

Halifax T.C.—Work in all trades for 96 houses at Cousin-la. B.E. Dep. £2 2s.

***Harrow U.D.C.**—16 flats for aged persons at George V-ave., Pinner. E. and S. Dep. £2 2s.

†**Oundle and Thrapston R.D.C.**—104 houses at 8 sites. Gotch, Saunders and Surridge, Bank-chmbrs., Kettering, Northants.

Portmadoc U.D.C.—(a) Preparation of housing site at Pensyflog; (b) erection of 32 houses; (c) supply of materials and construction of approx. 400 yds. of 12 in. dia. stoneware sewer, etc. Details of (a) and (b) from Griff Morris, F.I.A.A., Brecon-pl., Portmadoc. Dep. £3 3s.; and (c) from Richards and Dumbleton, Chartered Civil Engineers, Greenways, Portmadoc. Dep. £1 1s.

Rainford U.D.C.—14 pairs of houses (M.H. rural type) at Southern's-la. S. Dep. £5 5s.

Royton U.D.C.—50 houses at Haggate estate, Middleton-rd. L. Cookson, A.M.Inst.C.E., E. and S. Dep. £2 2s.

Spalding R.D.C.—26 pairs of houses and 5 pairs of bungalows at various sites. F. B. Saunders, Architect, 10, The Crescent, Spalding, Lincs. Dep. £2 2s.

***St. Albans T.C.**—60 houses at Cottonmill-la. John Clapp, B.Sc., A.M.Inst.C.E. City S. Dep. £2 2s.

St. Helens C.B.—114 houses at East Lancashire-rd. estate, Carr Mill. B. and Water E. Dep. £2 2s.

Spenborough U.D.C.—200 houses at Windy Bank estate. E. and S. Dep. £5 5s.

***Stroud U.D.C.**—36 houses at Ebley. E. and S. Dep. £2 2s.

Thurrock U.D.C.—146 houses at 2 sites. G. F. Andrassy, M.Inst.M. & Cy.E., E. and S. Dep. £3 3s.

JULY 2.

Metropolitan Water Board.—Construction of engine and pump house, administrative offices and chlorinating house. Chief E. Dep. £10 to the Comptroller.

Sutton Coldfield T.C.—20 houses at Duncalfe-dr. B.S. Dep. £2 2s.

Tipton T.C.—98 houses at Denbigh estate, Horseley Heath. B.E. and S. Dep. £3 3s.

Wem U.D.C.—(a) 50 houses at Lowe Hill-rd. Wind and Brown (L. and A.), 22, Glebe-st., Stoke-on-Trent. Dep. £2 2s.; (b) roads, sewer and water main at Lowe Hill-rd. S. Dep. £2 2s.

JULY 3.

Beverley T.C.—70 houses at Riding Fields estate. T.C. Dep. £2 2s.

Cheltenham R.D.C.—(a) 20 houses at 2 sites; (b) road and sewers at 2 sites. Rainger and Rogers (FF.), 29, Rodney-rd., Cheltenham. Dep. £2 2s.

Godmanchester T.C.—20 houses at The Grove estate. Lea and Milner (F. and L.), 4, Market Hill, Huntingdon. Dep. £2 2s.

Heckmondwike U.D.C.—14 houses at Dale-la. estate. S. Dep. £2 2s.

JULY 4.

Hitchin U.D.C.—12 houses at Grove Farm estate. E. and S. Dep. £2 2s.

Nuneaton T.C.—164 houses at Hill Top (East) estate. E. C. Moon, A.M.Inst.C.E., B.S. Dep. £2 2s.

Ripon and Pateley Bridge R.D.C.—25 houses at Kirkby Malzeard, Ripon. Needham and Thorp, 3, Duncombe-pl., York. Dep. £2 2s.

Rye T.C.—24 houses at Cadborough-rd. site. E. C. Harris and Partners, FF.S.I., 3, Bedford-sq., W.C.1. Dep. £2 2s.

Wilts C.C.—Widening Longbridge Deverill bridge. H. S. Ganderton, County S. Dep. £2.

JULY 5.

Cheadle and Gatley U.D.C.—68 houses at Oak-rd estate. Acting E. and S. Dep. £4 4s

Essex E.C.—(1) Drawing offices, central kitchen, etc., in huts ments, at North-East Essex Technical College and School of Art, Colchester; (2) hutted classrooms at Gray's County Technical school. County A. Tenders by July 6 for (1) and July 19 for (2).

Sherborne U.D.C.—24 houses and conversion of existing building at Horsecastles. T. W. Sharpe (L.), Council Offices.

Twickenham T.C.—Conversion and adaptation of "Milton Lodge," Wellesley-rd., into s.c. flats. B.E. and S. Dep. £2.

JULY 6.

***Huyton-with-Roby U.D.C.**—182 houses and 12 bungalows at Hag Plantation site No. 1. E. and S. Dep. £2 2s.

JULY 8.

Barrowford U.D.C.—(a) Roads and sewers; (b) erection of houses; (c) demolition of shelters. E. and S. Dep. £2 2s. for (a) and (b) and £1 1s. for (c).

Cheshire C.C.—Hutted kitchen and dining room and demolition of shelters at Stalybridge Westhill Boys' Modern Secondary school. E. M. Parkes, County A. Dep. £2 2s.

†**Coventry T.C.**—Construction of covered concrete reservoir, etc. Binnie, Deacon and Gourley and Herbert Lapworth and Partners, Engineers, Artillery House, Artillery-row, Westminster, S.W.1. Dep. £10. Tenders by July 23.

Neston U.D.C.—Erection of pumphouse. F. Charles Saxon (F.), F.S.I., 2, Stanley-st., Chester. Dep. £2 2s.

***Portland U.D.C.**—54 houses at Pound Piece, Weston-rd. Crickmay and Sons, 23, St. Thomas-st., Weymouth. Dep. £2 2s.

Preston T.C.—Hutted kitchen, dining room, etc., at Grammar School. B.E. and S

Rhayader R.D.C.—12 houses at Dark-la. S. N. Shrimpton and Son, Knighton, Radnor. Dep. £2 2s.

Rugeley U.D.C.—46 houses at Burnthill-la. E. J. James, E. and S. Dep. £2 2s.

JULY 9.

***Bath T.C.**—14 houses and 8 flats at Moorlands estate. Contract No. 2. City E. Dep. £2 2s.

Isle of Man Local Govt. Board.—Layout of roads, drainage and erection of 22 houses off Station-rd., Colby, Arbory. Lomas and Barrett, Chartered Architects, Martins Bank-chmbrs., Victoria-st., Douglas, I. of M. Dep. £2 2s.

***Irlam U.D.C.**—106 houses at 2 sites. Henry Nurse (F.), E. and S. Dep. £3 3s.

Manchester T.C.—Prefabricated hut to form housewifery block at College of Domestic Economy. City A. Dep. £1 1s.

***Northallerton U.D.C.**—6 pairs of houses at Crosby-rd. estate. C. Dep. £1 1s.

Pembroke R.D.C.—16 houses at Stackpole. J. Owen Parry and Lewis, Architects, Arcade-chmbrs., Ammanford. Dep. £3 3s.

JULY 10.

Disley R.D.C.—38 houses at Bentside site. W. C. Young (F.), 195, Oxford-rd., Manchester 13. Dep. £2 2s.

JULY 11.

***Southend-on-Sea C.B.**—Contract A: 11 pairs of houses at Eastern-ave. site No. 2. Contract B: 11 pairs of houses at Eastern-ave. site No. 2. B.E. Dep. £2 each contract.

JULY 12.

***Dover T.C.**—Relaying hardwood floor in Connaught Hall, Town Hall. B.E. and S. Dep. £1 1s.

JULY 13.

Kirkburton U.D.C.—14 houses at New-rd. Joint Clerks. Dep. £2 2s.

JULY 15.

Beddington and Wallington T.C.—140 houses at Park Farm. B.E. and S. Dep. £3 3s.

Brentford and Chiswick T.C.—18 flats at The Mall, Boston Manor-rd. B.E. and S. Dep. £5 5s.

JULY 16.

***Cheshire Joint Board for the Mentally Defective.**—2 blocks for male patients, external heating ducts, roads, drains and other works at Cranage Hall Colony. E. M. Parkes (F.), Architect to the Joint Board, The Castle, Chester. Dep. £2 2s.

JULY 17.

***Brighton C.B.**—Section IB, 56 houses and 44 Duplex flats; Section IIB, 62 houses and 28 Duplex flats. B.E. and S. Dep. £3 3s. each section.

JULY 20.

Potters Bar U.D.C.—38 houses at 2 sites. E. H. Walden, M.Inst.M. & Cy.E., E. and S. Dep. £3 3s.

JULY 22.

***Camberwell T.C.**—Rebuilding 3 pairs of houses at Red Post Hill. Wm. Bell, M.Inst.C.E., F.S.I., B.E. and S.

***Weymouth and Melcombe Regis T.C.**—25 houses and 16 flats off Benville-rd. B.E. and S. Dep. £2 2s.

JULY 23.

***Upton-on-Severn R.D.C.**—20 houses at 2 sites. Pemberton and Bateman (F. and A.), A.M.T.P.I., 29, High-st., Evesham. Dep. £2 2s.

JULY 24.

***Hackney B.C.**—Rebuilding 10 flats at Powell House, Lower Clapton-rd. W. G. H. Goodwin (L.) Housing Manager, 219, Mare-st., E.8. Dep. £2 2s.

NO DATE.

Melford R.D.C.—5 pairs of houses, together with roads at Bures St. Mary. H. C. Hughes and P. Bicknell (FF.), 1, Tunwells-ct., Trumpington-st., Cambridge. Dep. £3 3s.

Northallerton R.D.C.—40 houses at various sites. C. Dep. £2 2s.

MISCELLANEOUS

JUNE 29.

Folkestone T.C.—Demolition and removal of surface shelters. B.E. Dep. £2 2s.

JULY 1.

Burton-on-Trent T.C.—Demolition of shelters. B.E. and S.

Dartmouth T.C.—Demolition of shelters, bases of N.F.S. tanks and other defence works. B.E. Dep. £2 2s.

JULY 10.

Whitstable U.D.C.—Demolition of shelters and water supply tanks. S. and Water E.

JULY 15.

***Lewes T.C.**—Demolition of approx. 138 blast walls and removal of 85 doors and frames. B.S.

PAINTING, ELECTRIC LIGHTING, MATERIALS, ETC.

JULY 3.

Wandle Valley Joint Hospital Board.—Repair, painting and decoration at Isolation Hospital, Beddington Corner, Mitcham Junction. E. W. Gunner, Clerk to the Board, Isolation Hospital.

JULY 8.

Lancs. C.C.—Interior decorating and external painting at various schools. County A.

London County Council.—Repainting Highgate Archway. Chief E. Dep. £1.

ROADS, SEWERAGE AND WATER WORKS

JULY 1.

Ashby-de-la-Zouch R.D.C.—Roads and sewers at Spring-la., Swannington. Leonard Swanwick, M.Inst.R.A., 44, London-rd., Coalville. Dep. £2 2s.

Ashby Woulds U.D.C.—Roads and sewers at 2 sites. E. and S. Dep. £2.

Bexhill T.C.—Roads and sewers at Ingrams Farm housing scheme No. 2. B.E. and S. Dep. £2 2s.

Chorley R.D.C.—Construction of approx. 5 miles of main sewers, etc. Charles J. Lomax and Son, 37, Cross-st., Manchester 2. Dep. £5 5s.

Dawley U.D.C.—Construction of approx. 2,600 lin. yds. of 9-in. and 12-in. glazed stoneware pipe sewers, etc., and sewage disposal works. Willcox, Raikes and Marshall, engineers, 33, Gt. Charles-st., Birmingham, 3. Dep. £5 5s.

Finchley B.C.—Resurfacing 3 roads. B.E. and S. Dep. £2.

Longbenton U.D.C.—Roads and sewers at Moor View site. S. Dep. £2 2s.

Maidenhead T.C.—Reconstruction of Queen-st. B.E. and S. Dep. £2.

Ulverston U.D.C.—Roads and sewers at Water-la. Housing A. Dep. £2 2s.

JULY 3.

Bebington T.C.—Construction of 4¾ miles of concrete-tube steel, cast-iron and brick sewers, etc. G. B. Kershaw & Kaufman, 1, Victoria-st., Westminster, S.W.1. Dep. £5 5s.

Blackwell R.D.C.—Laying of approx. 375 yd. of 9 in. dia. and 41 yd. of 6 in. dia. concrete pipe sewers, etc. A. H. Elliott, A.M.I.C.E. E. & S. Dep. £2 2s.

JULY 4.

Leeds T.C.—Kerbing, flagging and tarpaving roads. Highways E.

JULY 5.

Newbury T.C.—Roads and sewers at Shaw estate. B.S.

Stranraer T.C.—Preparation of site for 78 houses. Burgh S. Dep. £1 1s.

Upper Stour Valley Main Sewerage Board.—Extensions at sewage disposal works. Geo. Plant Deeley, M.Inst.M. & Cy. E., Engineer, 13, Church-st., Stourbridge. Dep. £5 5s.

JULY 6.

Poole T.C.—Roads and sewers at Bourne estate. B.E. and S. Dep. £2 2s.

Sutton and Cheam T.C.—Roads and drainage works at Pylbrook site. B.E. and S. Dep. £1 1s.

JULY 8.

Rugby T.C.—Laying of 160 yds. of 9 in. foul sewer, etc., at Newbold. B.E. and S.

Stoke-on-Trent T.C.—Extensions at Meir sewage purification works. City Sewage E. Dep. £2 (Treasury notes).

JULY 9.

Cardiff T.C.—Sewer works. City E. Dep. £3 3s.

Wrexham R.D.C.—Roads and sewers at various sites. S. Dep. £2 2s.

JULY 10.

Bebington T.C.—Roads and sewers at Brackenwood site. B.E. and S. Dep. £2 2s.

Billericay U.D.C.—Roads and sewers at Vange site. S. Dep. £2 2s.

Erith T.C.—Roads and sewers at Lesney Farm estate. J. H. Clayton, B.E. and S. Dep. £2 2s.

Rothwell U.D.C.—Supply and laying of approx. 6,000 yds. of 6 in. water main. Pick, Everard, Keay and Gimson, 6, Millstone-la., Leicester. Dep. Dep. £1 1s.

JULY 12.

Southport C.B.—Roads and sewers at Rufford-rd, B.E. Dep. £2 2s.

JULY 15.

Barrow-in-Furness C.B.—Roads and sewers at Newbarns South site. B.E. and S.

JULY 17.

Bucks Water Board.—Supplying and laying of approx. 15,400 yds. of 15 in., 12 in., 10 in. and 7 in. spun-iron water mains, etc. G. Smethurst, B.Sc.A.M.Inst.C.E., Water E., 22, Walton-st., Aylesbury. Dep. £2 2s.

Epping R.D.C.—Extensions to sewage disposal works at Harlow. A. P. I. Cotterell and Son, Engineers, 54, Victoria-st., Westminster, S.W.1. Dep. £3 3s.

JULY 24.

Wetherby R.D.C.—Sewerage and sewage disposal works. W. K. Rodwell, A.M.I.C.E., Engineer, 44, Park Cross-st., Leeds 1.

NO DATE.

Cambs. C.C.—Surfacing roads. County S.

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PUBLIC APPOINTMENTS

*Full details of Public Appointments marked * are advertised elsewhere in this issue. Those marked † have been advertised in previous issues.*

JUNE 27.

***Lumesdale R.D.C.**—(a) Housing Architect; (b) Clerk of Works.

JUNE 29.

***Hampstead T.C.**—(1) Senior Town Planning Assistant; (2) Junior Town Planning Assistant; (3) Vehicle and Plant Superintendent; (4) Sewers Foreman; (5) Building Foreman.

JULY 1.

***Eastbourne C.B.**—Deputy Boro' Architect.

†**Liverpool T.C.**—Deputy City Architect and Director of Housing.

†**Liverpool T.C.**—Assistant Surveyor.

***Merthyr Tydfil C.B.**—(a) Senior Architectural

Assistant; (b) Junior Architectural Assistant; (c) Quantity Surveyor; (d) Estimating and Costing Clerk; (e) Junior Engineering Assistant.

†**North Lines Joint Planning Committee.**—Planning Assistant.

†**Robert Gordon's College, Aberdeen.**—Junior Lecturer and Studio Instructor.

JULY 2.

***South Kesteven R.D.C.**—Clerk of Works.

JULY 3.

***Hayes and Harlington U.D.C.**—(a) Chief Architectural Assistant; (b) Clerk of Works.

†**Kirkcaldy T.C.**—Chief Architectural Assistant.

***Sleaford U.D.C.**—Clerk of Works.

JULY 5.

***Coventry T.C.**—Clerks of Works (Temp.).

***Fife C.C.**—Architectural Assistant.

***Lincoln T.C.**—(1) Architectural Assistant; (2) Architectural Assistant.

***Norwich T.C.**—Quantity Surveyor.

***Somerset C.C.**—Architectural Assistant.

***Southgate T.C.**—Architectural Assistant.

JULY 6.

***Middlesbrough E.C.**—Architectural Assistant.

***Ripley U.D.C.**—Housing Architect's Assistant (Temp.).

***Surrey C.C.**—Chief Quantity Surveyor.

JULY 8.

†**Blackburn C.B.**—(a) Senior Architectural Assistant; (b) Architectural Assistant; (c) Architectural Assistant; (d) Architectural Assistant; (e) Assistant Quantity Surveyor.

***Bolton C.B.** — (a) Quantity Surveying Assistant, Grade IV; (b) Quantity Surveying Assistant, Grade II.

†**Brighouse T.C.**—Architectural Assistant.

***Market Harborough R.D.C.**—Architectural Assistant (Temp.).

***Mitcham T.C.**—Assistant Architect.

†**Norfolk E.C.**—Two Senior Architectural Assistants.

†**North Riding C.C.**—Architectural Assistant.

***Salop C.C.**—(a) Assistant Architect; (b) Assistant Architect; (c) Junior Architectural Assistant; (d) Quantity Surveying Assistant; (e) Engineer; (f) Building Inspector.

***Southampton C.C.**—(a) Principal Assistant Architect; (b) Senior Assistant Architects; (c) Assistant Architects; (d) Assistant Architects; (e) Architectural Assistants; (f) Assistant Quantity Surveyor; (g) Heating Engineer.

JULY 10.

***Dewsbury C.B.**—Architectural Assistant.

***Mansfield T.C.**—Assistant Building Inspector.

JULY 11.

***West Bromwich C.B.**—Assistant Building Surveyor.

JULY 12.

***Oxford T.C.**—(1) Senior Town Planning Assistant; (2) 2 Senior Engineering Assistants; (3) Engineering Assistant; (4) Building Inspector.

***Portsmouth T.C.**—(a) 2 Senior Planning Assistants; (b) 2 Planning Assistants.

JULY 15.

***Chesterfield T.C.** — Senior Architectural Assistant.

JULY 17.

***Dartford T.C.**—(1) Junior Architectural Assistant; (2) Assistant Building Inspector.

***Mansfield T.C.** — Third Architectural Assistant.

JULY 22.

***Brighton Technical College.**—Lecturer in Architectural and Building Subjects.

JULY 25.

***Breconshire C.C.**—(1) Junior Assistant Architect; (2) 2 Assistant Architects; (3) Assistant Quantity Surveyor; (4) Land Surveyor.

JULY 31.

***Heriot-Watt College, Edinburgh.**—Lecturer in Building.

NO DATE.

***Colonial Service.**—Town Planner for Govt. of Uganda.

***Derbys E.C.**—Teacher of Building Subjects at Chesterfield Junior Technical School.

***London County Council.**—(a) Temporary Planning Officers; (b) Temporary Technical Assistants.

***Middlesex C.C.**—Building Foreman.

***Southend-on-Sea E.C.**—Senior Lecturer in Building.

GENERAL BUILDING WORK

(LONDON)

Camberwell.—FLATS.—B.C. have received from Mr. Grey, Council's Architect for the scheme, a suggested layout for the erection of five-storey flats and three-storey maisonettes with flats on the Lordship-la. site. The Council have appointed Messrs. E. C. Harris & Partners, 3, Bedford-sq., W.C.1, as quantity surveyors for the scheme.

Camberwell.—HOUSING.—B.C. are to request L.C.C. to make compulsory purchase orders in respect of the following sites for permanent housing purposes: 1-17, Ablett-st., 113-129, Barkworth-rd., 1-11, Rainbow-st., 12-17 (consecutive), Bonsor-st., 59-75, Crofton-rd., 1-13, Adys-rd., 5-19, and 27-31, Mundania-rd., 18-22, Therapia-rd., 1-23 and 12-36, Melford-st. Also a site adjoining Dulwich Common.

Wanstead Flats.—HOUSING.—West Ham Corporation propose to acquire 163 acres of Wanstead Flats for temporary housing.

(PROVINCIAL)

Alnwick.—S. to prepare plans for houses at Greensfield-av., Northumberland.—E.C. seeking land for educational purposes.

Ashton-in-Makerfield.—U.D.C. propose public baths scheme.

Blyth.—North Eastern Trading Estates to erect factory. Plans by W. Stockdale, Howard-st., North Shields.

Brighouse.—T.C. approved: Works at Brookfoot-la., for S. Marshall & Sons, Ltd.; additions at Albert Mills, Huddersfield-rd., for Clayton West Cotton Co., Ltd.; T.C. propose 198 houses at Cain-la.

Caterham and Warlingham.—U.D.C. approved layout for 151 houses at Hilltop-la., Pilgrimsway, Chaldon, Caterham; and bungalow at Doctors-la., Chaldon. Plans by H. Weston, F.I.A.A., F.I.A.S., 91, Dorking-rd., Epsom.

Consett.—Consett Industrial and Provident Society, Ltd., propose premises on Richard Murray Hospital land.

Crewe.—T.C. propose 92 houses at Rolls-av. and Wheelman-rd.

Durham.—R.D.C. proposes 88 houses at Morley-cres., Kelloe, and 48 at Pity Me.—Housing plans in preparation for Witton Gilbert, Bearpark, Shadforth, Cassop, Belmont, Croxdale and Bowburn.

Ellesmere Port.—U.D.C. propose 100 steel houses at Wolverham estate.—Syndicate propose greyhound and sports stadium at Rossmore-rd.

Grimsby.—Thornelow & Clarkson, Leicester, clothing manufacturers, to erect factory at Ladysmith-rd.

Haltwhistle.—Extensions to be made to factory at Hadrian Paint and Varnish Co., Ltd. Plans by Cackett, Burns Dick & McKellar, Ellison-pl., Newcastle.

Hindley.—U.D.C. approved alterations to knitting works at Wharncliffe-st., for Cohen & Wilks, Ltd.

Hooton.—Syndicate propose greyhound racing track and sports stadium at Hooton-rd.

Lancaster.—Syndicate propose greyhound racing stadium at White Lund.

Lanchester.—M.H. agreed to preparation of housing schemes at Lanchester and Langley Park and provisional schemes for Cornsay, Burnhope and Quebec.

Longbridge Hayes.—British Legion members propose headquarters at John-st.

Manchester.—City Council propose restoration of Wythenshawe Hall, at £20,000.

Manchester.—T.C. propose: Public washhouse at Collyhurst; 290 "Riley" houses and 250 "B.I.S.F." houses at Wythenshawe, at £654,875; Ryaland (Manchester), Ltd., Welcomb-st., Hulme, propose factory at Paston-rd., Northenden.—T.C. approved: Primary school at Neighbourhood Unit, Wythenshawe; 2-3-storey building for works at River-st. and Short-st., Hulme, for Yeomans (Printing), Ltd., B. Pendleton (L.), architect, 16, Bazennose-st.; additions to works at Viaduct-st., Ardwick, for P. Darlington & Sons, Ltd., Drury & Gomersall, architects, 11, Imperial-bldgs., Oxford-rd.; works, Talbot-st., Moss Side, for Hyde's Anvil Brewery Co., Ltd., F. Riley (L.) (Bramield & Smith), architects, 81, Upper Brook-st.; additions to works at Sparkle-st. and Lomas-st., for Southern, Ltd.; factory at York-st., for B. L. Stark.

Mansfield.—T.C. propose Memorial Concert Hall at Clumber-st., at £10,000.

Middleton.—T.C. approved: Extensions to works at Townley-st., R. Halliday & Co., Ltd., Market-pl.—T.C. propose: Shopping Centres at housing estates; municipal restaurant; Grammar school at Outer Ring-rd., Alkrington.

Newcastle, Staffs.—Committee of Labour Party propose community centre at Villa Farm, Knutton.—T.C. received approval for 200 "B.I.S.F." houses at Beasley Farm estate.—T.C. approved site at National School for Civic Hall. Plans by Bradshaw Gass & Hope (FF.), architects, 19, Silverwell-st., Bolton.

Northampton.—R.D.C. propose 129 additional "Airey" type houses.—Board of Management of General Hospital, Billing-rd., propose additional ward, improvements to kitchen, etc., at £7,000.

Preston.—T.C. propose adaptation of premises at Fishergate for central cooking depot and British Restaurant.

Reading.—T.C. approved, in principle, site for new municipal buildings.

Rotherham.—Parish Church Authorities propose Mission Church at Canklow Housing estate.—E.C. propose extensions at Technical College.

Runcorn.—R.D.C. propose 254 permanent houses: At Cobb's-la., Appleton (92); Bridge-la., Frodsham (58); Chester-rd., Helsby (90); Crescent-dr., Helsby (8); Top-la., Kingsley (2); and Manley (4).

Sheffield.—T.C. approved: Restoration of factory at Eyre-st., Cadman-la. and Howard-st., for Walker & Hall, Ltd.—T.C. appointed Ritchie & Partners, Consulting Civil Engineers (reinforced concrete specialists), "Alton," Kitsbury-rd., Berkhamsted, as structural engineering consultants for proposed Hadfield Service Reservoir.

Skelton and Brotton.—U.D.C. to erect 64 houses. Plans by S.

Sleaford.—M.H. approved, in principle, plan for development of northern part of Sleaford for erection of 400 houses.

South Shields.—T.C. to extend school meals scheme.

Stokesley.—R.D.C. to build 12 houses. Plans by Kitching & Co., 40, Albert-rd., Middlesbrough.

Stone.—U.D.C. propose development of land for 554 houses at Walton Heath. Sites to be reserved for Church school, cinema, shopping centre, hotel, etc.

Sunderland.—Additions proposed to works at St. Luke's-rd., for Sunderland Force & Engineering Co., Ltd., at £45,000. Plans by W. & T. R. Milburn, 17, Fawcett-st., Sunderland.—Board of Trade planning six more factories.

Swansea.—T.C. approved: Factories at Ystrad-rd., Fforestfach, for Neuhafer & Levi, Meltoy, Ltd., and M. I. Coffman, Ltd.

Tamworth.—T.C. to prepare scheme for redevelopment of borough.

Tynemouth.—T.C. to carry out alterations at Preston Emergency Hospital.—E.C. propose infants' school at Preston area.

Warwick.—T.C. approved factory at Millers-rd., for Aluminium Service Co.

Wigan.—E.C. propose secondary technical school for girls.

Wollescote.—J. & D. Croft & Sons, Ltd., propose extensions at Bald-la.

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TENDERS

* Denotes *accepted*.
† Denotes *provisionally accepted*.
‡ Denotes *recommended for acceptance*.
§ Denotes *accepted subject to modification*.
¶ Denotes *accepted by H.M. Government departments*.

Amersham.—Houses for R.D.C. Six at Ashley Green: *H. J. & A. Wright, Ltd., Gt. Missenden, £9,000; four at Bellingdon: *R. Brazil & Co., Amersham, £6,024; four at Chartridge: *Brown & Clark, Prestwood, £6,593; six at Hyde Heath: *Saunders & Son, The Lee, £8,093; four at The Lee: *A. W. Humphrey Bros., The Lee, £5,411; four at Seer Green: *W. J. Stringer, Chalfont St. Peter, £5,828; eight at South Heath: *R. S. Gates, Little Chalfont, £11,782; four at Winchmore Hill: *G. Darlington, Amersham, £5,944.

Ashby-de-la-Zouch.—50 houses at Westfields estate, L. Swanwick, architect, 44, London-rd., Coalville: *T. Barker & Son, Swan-st., Loughborough, Leics.

Bakewell.—30 houses at Hathersgate site, for R.D.C.: *H. Haywood, Sheffield, £35,843.

Banbridge (Co. Down).—52 houses, for U.D.C.: *White & Co., Belfast, £81,571 (subject to Ministry approval).

Banbury.—100 houses at Warwick-rd. site, for T.C.: *W. & A. Collinson, Banbury, £108,472 (subject to M.H. approval).

Bishop's Stortford.—100 houses at Havers-la. site, for U.D.C.: *J. Boyd Gibbins, 285, Romford-rd., E.17, £109,573.

Blackwell.—10 houses at Hawthorn-av., Tibshelf, nr. Alfreton, for R.D.C. S. Wells, architect, "Dale Close," 100, Chesterfield-rd. South, Mansfield: *E. Nightingale, Dark-la., North Wingfield, Chesterfield, £11,930.

Brentford and Chiswick.—Eight houses at Syon-la. extension site No. 3, for T.C.: *Siebert (Builders), Ltd., Pinner, £1,150 per house (negotiated tender, subject to M.H. approval).

Cambridge.—156 Easiform houses at Walpole-rd., for T.C.: *John Mowlem & Co., Ltd., £203,011 (subject to M.H. approval).

Coleraine (Co. Derry).—Extensions at Technical College, for T.C.: *John Magee, Lodge-rd., Coleraine, £10,463.

Consett.—Permanent prefabricated houses: *H. Boot & Sons, Ltd., Sheffield.

Cudworth, Yorks.—30 houses at Newton estate, for U.D.C.: *David Haigh, Barnsley, £36,577.

Doncaster.—30 houses at Briar-rd., Armthorpe, J. A. Williams, S.: *R. Worrall, 1, Sidney-st., Swinton, Yorks, £38,229.

Downham.—40 houses at Retreat estate, for U.D.C.: *J. L. Kier & Co., Ltd., Setch, £50,950.

Dukinfield.—70 houses at Victoria Farm site, for T.C. H. T. Seward (Cruickshank & Seward), 16, Princess-st., Manchester, architect: *Moston Brick & Building Co., Ltd., Moston, Manchester, £77,348.

Epping.—20 houses at Church-la., North Weald, Essex, for R.D.C. Tooley & Foster, architects, Midland Bank-chbrs., Buckhurst Hill, Essex: *Stedman Bros., New North Works, New North-rd., Barkingside, Essex: £24,616 (subject to reduction to £23,939 affected by alterations required by M.H.).

Great Yarmouth.—Alterations and additions at Caister-rd. Transport depot, for B.C.: *F. R. Hipperson & Son, Ltd., Broad-st.-pl., London, E.C.2, £22,998.

Harpenden.—50 houses at Batford estate, for U.D.C. E. R. B. Harriss (A.), 43, Bedford-row, London, W.C.1, and H. E. Stopher, M.Sc. (Eng.), A.M.I.C.E., P.A.S.I. Quantities by Veale & Sanders, 19, Hanover-sq., London, W.1: *J. Jarvis & Sons, Ltd., 12, Buckingham Palace-gdns., London, S.W.1, £57,655.

Harrow.—16 houses at Rayners-la. estate, for T.C.: *London Master Builders' Association, 47, Bedford-sq., W.C.1, £18,437.

Helston.—Houses for T.C.: 36 at Porthleven: *C. R. Hyde, Helston, £51,284 (subject to M.H. approval); 24 houses at Helston Ward: *J. M. Tiddy & Son, The Lizard, nr. Helston, £30,829.

Hornsey.—34 cottages at Annington-rd., N.2, for T.C. J. H. Melville Richards in association with Stewart & Hendry, 90, Fenchurch-st., E.C.3. Quantities by Crump & Trinick, 40, Catherine-pl., S.W.1: *E. H. Jackson, 623, High-st., Hornsey, N.8, £21,439.

Irthlingborough.—External painting at 193 houses, for U.D.C. E. Turnbull, S. 131 houses: *Molcher & Sons, £1,218; 62 houses: *W. Smeathers, £508 (both of Irthlingborough).

L.C.C.—Contracts exceeding £2,500 in value placed by L.C.C. during period ended June 12: Wiring and fittings for electric lighting, etc., in blocks 1, 2 and 3 of flats, Tufnell Park-rd., Islington, N.1: Samuel Reed & Sons, Ltd., 58, Bermondsey-st., S.E.1; wiring and fittings for electric lighting, etc., for 36 flats in six blocks (Nos. 1, 2, 3, 8, 9 and 10), Highbury estate (Highbury New Park site): Newman & Watson, Ltd., 45, Nottingham-pl., W.1; reinstatement of north-western corner of administration block at Grove Park Hospital, Lee: Henry Kent (Builders), Ltd., 51, Beacon-rd., Hither Green.

Liverpool.—Further 102 houses at Brook House estate, for City Council: *Unit Construction Co., Ltd., Liverpool, £112,400.

Llanfyllin.—Eight Swedish houses at Llanfaircaereinion, for R.D.C. R. Arthur Jones, architect, Bwthyn-Hedd: *J. Deam & Co., Penybryn, Llanfyllin, £6,836.

London (Air Ministry).—Contracts to value of £500 or over for week ended June 15:—*Heating and hot water installation work*, Fred G. Alden, Ltd., Oxford. *Roofing work*, Wailes Dove Bitumastic Co., Birmingham, 2; D. Anderson & Son, Ltd., Manchester. *Building work*, A. H. Hooker & Sons, Ltd., Maidstone.

¶London (M.O.W.).—Contracts placed by M.O.W. during week ending June 6:—

London: Poplar B.C., 6F: Site work and Seco houses, Speirs, Ltd., 66, Victoria-st., S.W.1; Islington P.O. stores, Partitions and other works, C. & F. Bryen, 170, Hornsey-la., N.6; Greenwich Royal Naval College, Repairs and decorations, Harry Vent, 51, Beacon-rd., Lewisham, S.E.13; Faraday-bldgs., Queen Victoria-st., E.C.: Reinstatement work, G. Wimpey & Co., Ltd., Tilehouse-la., Denham, Uxbridge, Middx; Islington B.C., Site work and Seco houses, Trollope & Colls, Trocoll House, 41-44, Gt. Queen-st., W.C.2; Lambeth Con. 5, Wandsworth Con. 12, Battersea Con. 5, Site work and Temp. houses, Kirk & Kirk, Ltd., Atlas Works, Putney, S.W.15; St. Pancras B.C. Con. 3, Site work and Temp. houses, Trollope & Colls, Trocoll House, 41-44, Gt. Queen-st., W.C.2; Poplar B.C. Con. 6, Additional site work, etc., Speirs, Ltd., 66, Victoria-st., S.W.1; Greenwich B.C. 4, Additional site work, etc., Lavender McMillan, Ltd., 54, Cheam Common-rd., Worcester Park, Surrey; Lambeth B.C. Con. 4F Additional site work, etc., G. E. Wallis & Sons, Ltd., 231, Strand, W.C.2; Victoria Depot, 1, Bridge-pl., Belgrave-rd., S.W.1, Alterations and decorations, Grace & Marsh, Ltd., New Bridge Works, Waddon, Croydon; Greenwich Telephone Exchange, Extension, Griggs & Son, Ltd., 56, Victoria-st., S.W.1. *Anglesey*: Rhoscolyn Temp. School buildings, Erection, H. Jones & Sons, Beach-rd., Rhosneigh; Llangefni Temp. School buildings, Erection, H. Jones & Sons, Beach-rd., Rhosneigh. *Ayrshire*: Newmilns and Darvel, Site work and Seco houses, David R. Gilchrist & Co., Ltd., 14, Gallowhill-rd., Paisley. *Beds*: Bedford Aeronautical National Establishment, Road making, Howard Farrow, Ltd., Bank-bldgs, Russell-parade, Goldere Green, N.W.11. *Ches*: Wallasey High school, Kitchen, Cartwright Bros. (Little Sutton), Ltd., Dudleston-rd., Little Sutton, Wirral. *Clackmannan*: Tullibody, Site work and Aluminium houses, Robert Beatson & Son, Whiteyetts, Sauchie, Clackmannan. *Denbighshire*: Ruthin County school, Kitchen, John Hughes (Contractors), Ltd., 12a, Holt-st., Wrexham. *Dumfriesshire*: Langholm, Site work and Seco houses, James Barclay, West Langley-st., Kilmarnock. *Durham*: Shildon U.D.C.1, Foundations and site work for Aluminium houses, Edgar Lawson, Ltd., 10, Woodland-rd., Darlington; Darlington C.B. 3, Residual work and Tarran houses, Bussey & Armstrong, Brinkburn-rd., Darlington. *Essex*: Ilford B.C. Con. 3A, Additional site work and Arcon houses, F. R. Hipperson, 6, Broad-st.-pl., London, E.C.2; Chigwell U.D.C. Con. 3A, Additional site work and Arcon and Seco houses, F. R. Hipperson, 6, Broad-st.-pl., London, E.C.2. *Glamorgan*: Cardiff, Birchgrove school, Temp. buildings, L. G. Mills, 75, Ferry-rd., Cardiff. *Lancs*: Blackburn C.B. 2, Site work and foundations Aluminium houses, Middleton & Co. (Blackpool), Ltd., Bank-st. Sidings, Blackpool; Garstang U.D.C. 1, Site work and foundations Aluminium houses, R. G. Roberts & Co., Ltd., Cleveleys, Blackpool; Crosby, Coronation-rd. Modern school, Hutted accommodation, W. W. Kenney (Maghull), Ltd., 87, Liverpool-rd. North, Liverpool; Manchester C.B. 13, Erection and residual work Tarran houses, J. Gerrard & Sons, Ltd., Swinton; Manchester, Sandywell-st., Openshaw, Kitchen and dining-room, Pochins (Manchester), Ltd., Mount Denham-rd., Bowden, Cheshire. *Leicester*: Hinckley U.D.C. 4, Site work and temporary houses, J. Chapman & Sons, Ltd., Knighton Junction Works, Welford-rd., Leicester. *Middx*: Edmonton B.C. 3, Additional site work and erection, James Stewart (Tottenham), Ltd., 174, West Green-rd., Tottenham, N.15. *Montgomery*: Welshpool Modern Secondary school, Temporary school buildings, W. S. Brocklebank, Ltd., Woodchurch-rd., Birkenhead. *Northumberland*: Newcastle T.O.B., Second eight blocks, G. Wimpey & Co., Ltd., Tilehouse-la., Denham, Uxbridge, Middx. *Roxburghshire*: Newcastle-on-Tyne, Site work and Seco houses, James Barclay, West Langland-st., Kilmarnock. *Surrey*: Beddington & Wallington B.C. Con. 1, Site work and Arcon houses, G. E. Wallis & Sons, Ltd., 231, Strand, W.C.2. *Yorks*: Leeds C.B. 3, Site work and Temporary houses, E. W. Moulson, 64, Fair-rd., Wibsey, Bradford; Withernsea R.D.C. 1, Temporary houses, Quibell & Son, Ltd., 354, Beverley-rd., Hull.

¶London (War Dept.).—Works contracts placed by War Dept. for week ended June 1:—

Pembrokeshire: Miscellaneous work, J. Arnold & Sons, Clydach, Swansea. *Hampshire*: Roadwork, Thames Tar Products & Contractors, Ltd., West Croydon, Surrey; R. V. Smith & Co., Ltd., London, S.W.1; painting work, Electro Depositing Co., Wolverhampton; miscellaneous work, W. L. Woolford & Sons, Winchester; J. Bates & Sons, Southampton.

London (War Dept).—Works contracts placed by War Dept. for week ended June 8:—

Leics.: Miscellaneous work, A. Padgett & Co Leicester. *Hampshire*: Miscellaneous work, John Hunt, Ltd., Gosport; miscellaneous work, W. G. Sheppard, Guildford. *Devon*: Miscellaneous work, W. Beer & Son, Bideford.

Louth.—20 houses at Eastfield-rd., for T.C. J. C. Barber, M.Inst.M.&Cy.E., B.S.: *Ellis, Thompson & Co., Ltd., James-st., Louth, £25,811.

Maldon and Coombe.—(a) Rebuilding Nos. 1 and 8, Robin Hood-la., for T.C. B.E.: †S. G. T. Kilby, £2,229.

Market Harborough.—30 houses at Bowden Field estate, for U.D.C.: *F. Hickman & Sons, £34,739.

Middleton.—Works for T.C. J. Pollard (L.), B.E. & A. Houses, Jubilee-ter. site: *Ashton (Estates), Ltd., Suffield-st., Middleton; 12 houses, Green-la. and Hazel-rd. site: *Goodyear & George, Middleton.

Milnrow.—28 houses at Harborough-la., for U.D.C. A. S. Whipp, S.: *G. E. Cockin, 415, Foxdenton-la., Chadderton, nr. Oldham.

Newburn-on-Tyne.—126 houses at Claremont site, for U.D.C. J. H. Weatherley, S.: *George Bainbridge, Lemington, £149,395 (subject to M.H. approval); 116 houses for U.D.C. (26): *W. Longstaff, Denton; (24): *W. E. Harrison, Gosforth; (18): *J. Vickers, Denton Burn; (48): *James White, Gateshead.

Newcastle-on-Tyne.—136 temporary houses at Blakelaw estate, for City Council: *E. Jeffock, Ltd., Walbottle-rd., Newburn-on-Tyne.

Newcastle-on-Tyne.—Painting works for City Council: City Hospital for Infectious Diseases: *T. W. Nixon, Ltd., Blakemoor-pl., Newcastle, £350; Barrasford Sanatorium: *J. H. Eblett, Sugley-st., Lemington-on-Tyne, £677; Shotley Bridge Emergency Hospital: *W. Moss & Sons, Ltd., St. Mary's-pl., Newcastle, £1,812; Walker Baths: *A. Robertson & Son, Leazes Park-rd., Newcastle, £454.

Newtown, Mont.—84 houses at Dolfor-rd. site, for U.D.C.: *Jones & Leach, Newtown, £112,496.

Northampton.—50 Orlit houses at Headlands estate, for T.C.: *A. Glenn & Sons, Ltd., Kingsley Park, Northampton.

Northern Ireland Housing Trust.—420 houses and 100 flats with site works at Cregagh, Belfast. Ministry of Finance (Room 103), May-st., Belfast: *Fraser & Co., Hillfoot-st., Belfast; *McGrath Bros. (Belfast), Ltd., Lisles-dr., Belfast; *John McMillan, Abbey-cres., Whitehouse, Co., Antrim; *Courtney & Co., Shaftesbury-av., Belfast; *James McCready, Ltd., Private-rd., Cregagh, Belfast; *John McCall & Sons, 75, Church-view, Holywood, Co. Down.

Penryn.—40 houses at Tremough, for T.C.: *J. Williams & Son, St. Austell, £54,470 (subject to M.H. approval).

Rochford.—28 houses at Coronation-close, Gt. Wakering, for R.D.C. A. N. Box, S.: *C. S. Wiggins & Sons, Hart-rd., Thundersley, Essex, £33,388.

Rowley Regis.—12-14 houses at Thorne-rd. estate and 32 at Station-rd., Old Hill, for T.C. G. S. Wood, B.S.: *Direct Labour Dept.

Royston.—30 houses at Pinfold site, for U.D.C.: *R. K. Poskitt, Ltd., Goole, £35,572.

Runcorn.—Six s.d. houses at Bridge-la., Frodsham, for R.D.C. A. J. King, S.: *A. Garner, Frodsham, nr. Warrington.

Settle.—Site preparation and erection of two pairs of Swedish houses at Goodenber-rd. (North), High Bentham, and two pairs at Ribblesdale estate, Long Preston, for R.D.C. N. L. Jaggar, S.: *F. T. Fairchild, Barnoldswick, nr. Colne, £6,460.

Sheffield.—Works for T.C. W. George Davies (F.), City A., Town Hall. 32 houses Parson Cross estate (Building Scheme 4/1, section 14); (12): *G. Handley, Ltd., 993, Ecclesall-rd., 11, £12,579; (10): *Cowley, Murfitt & Sons, Ltd., 65-69, Garden-st., £10,443; (10): *C. L. Marcroft, Ltd., Morstone-cres., Totley, £10,409; 46 Orlit houses at Parson Cross estate (part 2, scheme 2): *M. J. Gleeson, Ltd., 822, Chesterfield-rd., Woodseats, £65,966; eight houses at Parson Cross estate (part of building scheme 3/2): *Cowley, Murfitt & Sons, Ltd., 65-9, Garden-st., £8,180; four prefabricated classrooms and canteen at Hurlfield Grammar School for Girls: *R. S. Hutchinson, Ltd., 430, London-rd. 2, £10,135; reinstatement of portions of Abbeydale Grammar school: *W. Malt-

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house, Ltd., Derbyshire-la., Woodseats 8, £8,743.

Shifnal.—36 houses at Curriers-la., for R.D.C.: *Purslehouse & Gregory, High-st., Wednesfield, Wolverhampton.

Sidmouth.—41 houses at Lymebourne and 16 at Salters Meadow, for U.D.C.: *Sidmouth Associated Builders, £52,810 and £19,820.

Southwell.—22 houses and road works adjoining East-la. estate, Edwinstowe, for R.D.C. S. Cooper, Housing A., 8, Westgate: *J. W. Richards & Co., Matlock Mill, Sheepbridge-la., Mansfield, £25,474.

Southwold.—40 houses at Sole Bay estate, Reydon, for T.C.: *Hipperson & Son, Ltd., Beccles, £49,350 (subject to M.H. approval).

Sunderland.—Eight houses at Sea View-rd. and Alexandra-rd.: *J. & H. Fowler, Sunderland.

Surbiton.—120 houses at Mansfield-rd., Hook, for T.C.: *Davis Contractors, Ltd., 352, Kilburn High-rd., N.W.6, £149,415.

Tamworth.—40 houses at Fazeley-rd., for T.C. H. F. Bruce Smith, M.Inst.M.&Cy.E., B.E. & S. (1): *G. Seedhouse, Little Aston-rd., Aldridge (18 houses), £23,461; (2): *G. Perks & Son, Aldergate, Tamworth (10 houses), £12,841; (3): *J. Orton, Summerfield-rd., Tamworth (12 houses), £15,325.

Tottenham.—66 houses at Allington estate, for B.C.: *E. H. Jackson, Ltd., 62a, High-st., Hornsey, £74,601 (subject to approval of M.H.).

Walsall.—120 houses at Hobs-rd. and Crew-rd. site, and Park-la. and Old Park-rd. site, for T.C.: *Walsall Builders' Federation, £145,817 (subject to M.H. approval).

Walsall.—150 houses at Dudley's Fields, for C.B. B.E. & S.: *Towers Wilson, Ltd., Tettenhall, Wolverhampton, £129,409.

Walsall.—Kitchen for Chuckery Junior school, for E.C.: *W. Cooper & Sons (Builders), Ltd., West-st., Blackheath, Birmingham.

West Lancashire.—26 houses and four flats at Chapel-rd., Hesketh Bank, for R.D.C. R. Rosbotham, S.: *Magill & Evans, 66, Hanover-st., Liverpool, £32,472.

Westminster.—For adapting 63-65, Cumberland-st. as a hostel for aged persons, for the City Council:—

Soole & Son	£8,950
Y. J. Lovell	8,935
Harry Neal	8,733
Holland & Hannen and Cubitts	7,722
E. H. Burgess, Ltd.	7,520
*Holliday & Greenwood	7,474

Westminster.—For builders' work in installation of lift at Rogers House, Grosvenor Housing Estate, for City Council: *Hall, Beddall & Co., £1,445.

Wolverton.—30 houses, for U.D.C. A. Baker, S.: *Gilbert Cole & Co., Ltd., 14, Market-sq., Northampton, £35,004.

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